

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY MATERIEL COMMAND
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AMC REGULATION
NO. 746-10

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Marking, Packing, and Shipment of Supplies and Equipment

PACKAGING OF ARMY MATERIEL FOR SHIPMENT AND STORAGE

Supplementation of this regulation by subordinate command is prohibited.

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CHAPTER 1

GENERAL

1-1. Purpose. This regulation prescribes responsibilities and provides uniform guidelines for packaging within the U.S. Army Materiel Command (AMC). It covers--

- a. Army-used or Army-managed materiel.
- b. Specified packaging requirements (how to develop, coordinate, and review).
- c. Levels of protection (how to select the proper level).
- d. Excessive packaging (how to spot it and how to avoid it).
- e. Packaging performed at depots and other AMC activities.
- f. Programs to evaluate and train packaging personnel.
- g. Mechanized systems and other modern techniques and how to apply them.
- h. Packaging data files and storage serviceability standard files (how to set them up and how to maintain them).

1-2. Scope. This regulation applies to Headquarters (HQ), AMC; AMC major subordinate commands (MSC), including subordinate installations and activities; project/product managers; and separate installations and activities reporting directly to HQ AMC.

1-3. References. Required and related publications and prescribed and referenced forms are listed in **appendix A**.

1-4. Explanation of abbreviations and terms. Abbreviations and special terms used in this regulation are explained in **appendix B**.

1-5. Responsibilities. a. Commanders of depots and other shipping or storage activities will--

(1) Apply the specified levels of protection when packaging materiel.

(2) Follow the applicable packaging requirements (e.g., drawings, packaging management data, specifications, or standards).

(3) Use the prescribed practices and materials to consolidate and unitize shipments.

(4) Inspect materiel upon receipt, in storage, and at time of shipment. Report any packaging or shipping discrepancies, to include materiel returns, on SF 364 (Report of Discrepancy (ROD)) per AR 735-11-2. Report transportation discrepancies on SF 361 (Discrepancy in Shipment Report) per AR 55-38 and quality discrepancies on SF 368 (Product Quality Deficiency Report (QDR) per AR 702-7.

(5) Correct reported deficiencies. Take action to prevent future discrepancies.

(6) Maintain current data files. Consult the Army Master Data File Retrieval Microform System (ARMS), packaging segment of the Army Master Data File (AMDF), and Packaging Data Microform File (PDMF) for latest data. Keep all published requirements and references readily available to packaging personnel.

(7) Provide any training needed at the operational level.

(8) Ensure that stock selected has the required packaging. Rotate stock (first-in/first-out) within the levels of protection.

b. Commanders of MSCs, secondary item control activities, and local installation acquisition activities will--

(1) Assume responsibility for the design, development, and documentation of packaging for the commodities they manage.

(2) Support the packaging data systems (Commodity Command Standard System (CCSS), AMDF, and PDMF) and maintain their currency.

(3) Include the required packaging data in all acquisition and supply transactions.

(4) Ensure that depots have the resources and facilities needed for upgrading and repacking. Procure packaging data from commercial sources at the time of acquisition of new systems/ components through Contract Data Requirements Lists (CDRL) in contracts.

(5) Give depots advance notice of large deliveries from contractors that will require upgrading of protection by specifying in the delivery order.

(6) Keep abreast of new methods and materials.

(7) Consider the environmental effect of disposal of a packaging material before specifying its use. Choose materials that can be reused or recycled, when possible.

1-6. Policy. a. AMC packaging will conform to this regulation and AR 700-15 regardless of where performed. Materiel offered for shipment will be adequately protected. It will be consolidated into the most favorable number of handling units. It will be safe to ship, and properly marked and identified.

b. Packaging for level C will be per requirements of MIL-STD-1190.

c. Marking for shipment and storage will be per MIL-STD-129, unless otherwise specified.

CHAPTER 2

PREPARATION, APPLICATION, CONTROL, AND EVALUATION OF PACKAGING REQUIREMENTS

Section I. PREPARATION

2-1. Developing requirements. Packaging requirements will conform to AR 700-15 and this regulation and will--

a. Reflect methods, materials, and designs that meet the needs of military levels of protection. Those described as preferred will be used, when possible.

b. Be described in explicit terms to assure system-wide uniformity.

c. Limit the number of types, grades, styles, sizes, methods, materials, and designs. The goal is to simplify buying and stocking materials.

2-2. Prescribing requirements. Standardize packaging requirements for like items. Include requirements in a minimum of documents. Also include levels A, B, and C packaging. Commodity specifications will not repeat requirements found in separate specifications, special packaging instructions (SPI), or standards. Reference instead--

a. Preparing activities will refer to MIL-STD-2073-1 when citing packaging requirements. Requirements in coded format will conform to MIL-STD-2073-2. Reference to MIL-STD-647, MIL-STD-726, and MIL-STD-794 is prohibited.

(1) Identify and analyze item characteristics per MIL-STD-2073-1 in all packaging engineering studies before referring to engineering and detailed packaging prescriptions.

(2) When preparing packaging data for Army items, activities will ensure that requirements for all levels are addressed. Requirements for levels B and C may sometimes be the same as a higher level; when this occurs, so state. A packaging reference of NA indicates a particular level of protection record is not applicable.

b. Use DD Form 2169 (Special Packaging Instruction (SPI)) and DD Form 2169C (Special Packaging Instruction). Identify SPIs as follows. The first position must be an "A" (for Army), the second position must equal B, C, D, E, F, G, H, J, K, L, M, P, Q, R, S, T, U, or X. For

Army-managed items, this second position must equal the first position of the materiel category (MATCAT). The remaining eight positions may be alphanumeric and are provided by the service or agency. Other actions to be taken by AMC MSCs include the following:

(1) Furnish copies of each prepared SPI to the Director, AMC Packaging, Storage, and Containerization Center, ATTN: SDSTO-TE-S, Tobyhanna, PA 18466-5097. AMCPSCC will furnish a PDMF of all SPIs to all depots and activities. Every 8 weeks an update will be issued. A revision will be issued based on the volume of changes to be made.

(2) Send SPIs to the gaining command upon transfer of an item. See AMC-R 70-46.

c. Specifications and standards. Packaging prescriptions in Federal and military specifications and standards will conform to the format prescribed in MIL-STD-961 and MIL-STD-962. General preservation and packing requirements for a group or category of items may be prescribed in a packaging specification.

(1) Packaging activities must provide detailed packaging requirements for each stock numbered item within the group or category. Annual budget programs must include these items.

(2) SPIs or packaging requirement codes will be used when detailed requirements are not included in a specification. SPIs and codes conforming to MIL-STD-2073-1 and MIL-STD-2073-2 will be used in conjunction with the PDMF.

(3) Citing a general type packaging reference (e.g., MIL-P-14232) in the PDMF is acceptable only when providing interim item coverage.

d. Technical publications (technical bulletins (TB), technical manuals (TM), and supply bulletins (SB)). AR 25-30 will be adhered to when preparing these publications. Packaging requirements to be included will--

(1) Conform to published requirements for like items, when possible.

(2) Be maintained in a current state to conform to latest standardization documents (e.g., standards, SPIs).

2-3. Coordinating requirements. AMC activities that prepare and coordinate standardization documents and technical publications that contain packaging requirements, in detail or by reference, will

submit draft copies to the Director, AMC Packaging, Storage, and Containerization Center, ATTN: SDSTO-TE-S, Tobyhanna, PA 18466-5097, for review and comments. Excluded are SPIs and coded packaging data listings.

a. Standardization documents are--

(1) Documents in the PACK area (to include all "packaging of" documents).

(2) Documents not in the PACK area but having packaging requirements that apply to Army-managed or Army-used items. (Army preparing activities or custodians will ensure that Army policy is included in commodity specifications.)

(3) Industry standards dealing with packaging machinery, methods, materials, procedures, or packaging operations.

b. Technical publications are those with new or revised packaging instructions for Army-managed items.

Section II. APPLICATION OF PACKAGING POLICY

2-4. Packaging requirements for levels of protection. Adhere to AR 700-15 and this regulation when selecting levels of protection. Instructions for packaging for the level of preservation and packing required are found in pertinent packaging documents.

2-5. Determining availability of packaging documentation. Refer first to the ARMS packaging segment of the AMDF to find current packaging requirements. If these cannot be found in the ARMS or PDMF, contact AMCPSCC.

Section III. CONTROL AND EVALUATION

2-6. Control of depot repackaging. a. Shipment. Repack materiel only if deterioration or damage has occurred, or is likely to occur.

(1) Complete or partial repackaging will conform to current data.

(2) Only those parts of the pack that cannot provide the required level of protection will be changed. Remark materiel per MIL-STD-129 and this regulation.

(3) In the event of general mobilization or a national emergency, provide maximum protection to materiel, namely level A preservation and level A pack, per paragraph 2-2 of AR 700-15. The fact that the

materiel release order (MRO) does not prescribe level A/A does not negate the A/A requirement. The only exceptions to this requirement will be strictly limited to instances of known favorable shipment, handling, and storage conditions.

(4) Repackaging shall be performed to meet the required level for the purpose and mode of transportation for each MRO.

b. Storage. U.S. Army Depot System Command (DESCOM) continental United States (CONUS) depots will--

(1) Package items going into storage from maintenance to the lowest level authorized by the packaging prescription in the ARMS file. Materiel coming out of maintenance or storage intended for shipment will be packaged to the level marked on the MRO or the Issue Release/Receipt Document (IRRD).

(2) Packaging materials, as specified for an item, shall not be removed in order to save storage space.

c. Commercial packaging. Buy off-the-shelf packaging, per ASTM-D 3951-88, supplied by the vendor when items are acquired locally or centrally for immediate use in maintenance, rebuild, repair, and utilities operations, and are not meant to enter the supply distribution system.

2-7. Control of packaging requirements in shipment and storage applications.

a. Special requests to change packaging. Packaging activities at AMC MSCs will receive, evaluate, and approve requests for major deviations from specified packaging. Approval will be granted on a one-time basis.

b. Coordination.

(1) Contracting officers will coordinate proposed deviations affecting packaging with the AMC MSC packaging activity responsible for the item.

(2) Depots will request major deviations from the AMC MSC packaging activity responsible for the item through their Quality Assurance Office. Requests for deviations will be transmitted by phone, message, or letter, depending on urgency.

(a) The AMC MSC packaging activity will review historical data on the item and give its reply to the requesting depot. An authorization number will be provided to the depot for immediate use as permission

to proceed with the deviation. Copies of the Packaging Deviation Request and Disposition Record will be provided to the depot and AMCPSCC, ATTN: SDSTO-TP-P. This documentation will be retained on file in the event a challenge to the packaging occurs.

(b) AMCPSCC will log requests for deviations from depots and the dispositions recorded by the AMC MSC packaging activity granting the deviation.

(c) When deviations are required and the MSC cannot be contacted (i.e., nonduty hours), the deviation may be locally approved by the depot. The depot will record the deviation and send a copy to the AMC packaging activity responsible for the item.

(3) The Quality Assurance Office at the depots will approve minor deviations. Materials substituted must perform as well as the prescribed materials. The depot will bring minor deviations that suggest a permanent change in required packaging to AMC MSC packaging activity's attention for action.

c. Notice of packaging deviation in shipments.

(1) Materiel from contractors will have a description of the deviation and the approving authority, date, and number noted in the acquisition receipt document or in the contract or modifications.

(2) For depot shipments, a description of the deviation and the approving authority, including number and date the approval was granted, will be written on DD Form 1348-1A.

(3) Deviations in preparing (preserving) unboxed or uncrated vehicles and equipment will be shown on two copies of DA Form 2258 (Depreservation Guide for Vehicles and Equipment) used by U.S. Army Troop Support Command (TROSCOM) and by U.S. Army Tank-Automotive Command (TACOM). Notation should clearly and briefly describe deviations involved. The approving authority, date, and number will also be shown on the form.

2-8. Analysis of packaging requirements and applications.

a. Objective. The main goal is to protect the item and use the correct level of protection. The aim of packaging analysis is to find corrective or improved measures where inadequate, excessive, or nonuniform requirements are apparent. This also applies when other questionable methods, materials, or designs are detected or suspected in a packaging requirement.

(1) The rules of value engineering will be used as a guide in analyzing packaging design and performance. Standardizing the current method for packaging materiel and cost reduction will also be considered.

(2) Packaging analysis complements the ROD Program and does not lessen the need for reporting packaging deficiencies. The main emphasis will be on one item or group of items selected by MSCs or depots. Select the most likely to help meet analysis goals.

b. Participation in the analysis program.

(1) AMC depots and other installations and activities will take part as follows:

(a) Provide AMCPSCC with the national stock numbers (NSN) and names of Army-owned items that need packaging improvements or packaging value engineering. Requests for packaging analysis may be made to AMCPSCC by any means.

(b) Give AMCPSCC the basis for the recommended analysis.

(2) AMCPSCC will execute the program as follows:

(a) Maintain a log of analyses performed and acknowledge requests upon receipt.

(b) Analyze packaging requirements based on RODs, packaging document reviews, and Outreach Program observations.

(c) Coordinate with the proper packaging activity to determine the standards and supply status of the item. Also check with the activity about changes in packaging requirements or designs that may have already been accomplished or are underway. For other than Army-owned items, AMCPSCC will contact the owner service for guidance.

(d) Analyze the current packaging methods or procedures to validate their adequacy. Develop, or cause to be developed, alternate packaging methods by the responsible packaging activity.

(e) Coordinate proposed packaging methods, procedures, or changes with the proper packaging activity for review and concurrence.

(f) Advise requesting activities of the action taken or planned.

(g) Provide for timely distribution to depots of current changes in packaging methods and requirements for specific items or groups of items resulting from analyses.

(3) Packaging activities at AMC MSCs will take part as follows:

(a) Evaluate the analyses from AMCPSCC and revise current requirements.

(b) Ensure that revised packaging requirements are reflected in the applicable documents.

(c) Furnish AMCPSCC, through a coordinated effort, a listing of assigned items when analysis is desired.

2-9. Evaluation of suggestions. a. Submission to AMCPSCC. A suggestion dealing with packaging, storage, transportation, or hazardous materials will be sent to AMCPSCC for evaluation when--

(1) The suggestion has been locally adopted and is deemed to have a broader than local application.

(2) The subject of the suggestion does not pertain to any local activity, though it is considered useful to other activities.

(3) The suggestion is recommended for adoption, but approval is not within the authority of the office making the evaluation because of commodity or functional level.

b. Participation by AMC MSCs, installations, and activities.

(1) Each AMC MSC, installation, and activity will take part as follows:

(a) Provide a supporting evaluation per AR 672-20.

(b) Provide AMCPSCC an estimate of tangible and intangible benefits to be derived locally, if adopted.

(c) Provide comments and recommendations to AMCPSCC on suggestions initiated elsewhere, when requested.

(d) Evaluate suggestions received from AMCPSCC, covering single stock numbered items or single commodities. Reply directly to the activity requesting evaluation with an information copy to AMCPSCC.

(e) MSCs will furnish copies of the suggestion and the completed evaluation to AMCPSCC.

(2) AMCPSCC will take part in the program as follows:

(a) Receive and evaluate suggestions based on data on hand or obtained through Department of Defense (DOD)-wide coordination.

(b) Forward suggestions covering a single stock numbered item or single commodity to the applicable MSC for evaluation and direct reply to the activity requesting evaluation.

Section IV. PACKAGING DATA FILES

2-10. Makeup of packaging data files. a. Packaging data file content. The packaging data files available for use in retrieving packaging requirements for storage and shipment are--

(1) The ARMS Packaging File. This microfiche file contains data elements extracted from the packaging segment of the AMDF. The file is divided into four sections that provide packaging requirements.

(2) The PDMF is a file of hard copy packaging data sheets and SPIs reproduced on 24X microfiche. The PDMF is produced by AMCPSCC and is sent (by request) to users worldwide.

b. Use of packaging data files.

(1) The packaging segment of the AMDF is used to transmit packaging data by computer record.

(2) The ARMS packaging file may be used--

(a) To develop packaging requirements.

(b) For the actual packaging of items for storage or shipment.

(3) When researching packaging data, consult the ARMS file first, as all Army supply items are listed in this file. If more detailed data are required (e.g., a data sheet or SPI), use the PDMF.

2-11. Development of packaging data (other than weight and cube) by CONUS depots.

a. Depots will develop packaging data for an item only when the data are not available in the ARMS, AMDF, PDMF, or from any other source.

When the required data are not in these packaging files, AMCPSCC will be contacted to find out if the information is already available prior to local development.

b. When required data are not available and must be developed locally, take the following steps:

(1) Packaging requirements shall be developed and documented per MIL-STD-2073 series documents.

(2) Use the methods and procedures of MIL-STD-2073 series documents, this regulation, and applicable commodity packaging specifications.

(3) Use locally developed data only until such time as other data for the item are included in the ARMS packaging segment of the AMDF or the PDMF.

(4) Send completed packaging documentation to AMCPSCC for review, evaluation, and submission to the proper MSC.

c. Depots will develop weight and cube data.

(1) When weight and cube data for a given item are not available in either the Depot Stock Number Master Data Record (DSNMDR) or the ARMS file, depots will develop the data (except for items having acquisition advice codes L, N, T, V, W, and Y) and submit the data to the file originator at the MSC using the Depot Weight and Cube Challenge System (DWCCS) for review.

(2) The managing activity will review weight and cube data. Data accepted for use will be input to the packaging segment of the AMDF.

Section V. EXCESSIVE PACKAGING

2-12. Identifying excessive packaging. Shown below are some examples of excessive packaging.

a. Using a higher level of protection than is required.

b. Using more costly materials or methods when others would provide ample protection at a lower cost.

c. Waterproofing (as with case liners) of items already waterproofed by the method of preservation.

d. Shipping small individual containers to a single destination rather than using a unitized load.

2-13. Packaging not considered to be excessive. Certain conditions that may appear to be excessive packaging are acceptable when other factors are considered in proper perspective. These include--

a. Use of available materials and containers that exceed requirements when too much delay or high acquisition costs would result from buying specified materials.

b. Shipment of in-stock items having a higher level of protection than that required after all locations have been checked for stock at the required level of protection (LOP).

c. Adding nonreinforcing skids to heavy boxes, which increase the container's weight and cube but reduce handling costs through better use of forklifts, slings, and other handling aids.

d. Special protection required to prevent theft of items that are classified, hazardous, or sensitive.

e. Use of materials and containers that exceed protective requirements when no additional costs are incurred and specified weight and dimensions are not exceeded.

f. Ammunition, explosives, and other hazardous materials when prepared per approved drawings and specifications.

2-14. Determining requirements and application by packaging operations.

a. General. Avoid excessive packaging through--

(1) Strict adherence to packaging specifications.

(2) Consideration of such factors as storage, methods of shipment, ultimate destination, immediacy of use, and end use of the item.

b. Determine packaging requirements. Specifications, packaging instructions, or acquisition documents will require using the lowest cost methods and materials to meet the level of protection required by AR 700-15. Packaging requirements will be stated so as to preclude excessive packaging.

c. Application of requirements. Packaging activities will adhere to packaging specifications and other factors to avoid excess packaging and resulting increase of cube. Recommend revisions or corrections as follows:

(1) When specifications are involved, complete DD Form 1426 (Standardization Document Improvement Proposal) and submit to addressee shown on the back of the form.

(2) When acquisition documents are involved, prepare SF 364 and submit per AR 735-11-2.

(3) When DESCOM depots are involved, advise the Director, AMC Packaging, Storage, and Containerization Center, ATTN: SDSTO-TP-P, Tobyhanna, PA 18466-5097.

2-15. Reporting of excessive packaging. Receivers of military supplies and equipment will complete an SF 364 on excessive packaging in enough detail to show how the item is overpackaged. Include recommendations for correction.

CHAPTER 3

DESIGN AND PERFORMANCE CRITERIA FOR LEVELS OF PROTECTION, PRESCRIPTION, AND APPLICATION

3-1. Levels of protection. The levels of protection for preservation and packing shown in AR 700-15 provide a ready reference for use with the design and performance criteria outlined in this section.

3-2. Criteria for developing preservation and packing requirements. Developing preservation and packing requirements for level of protection applications will conform to the design criteria specified herein.

a. Level A. Preservation and packing will be designed to protect materiel under the most severe worldwide shipment, handling, and storage conditions. This includes outdoor storage in all climatic conditions for at least 1 year. Unit packs designed per MIL-P-116 will meet all the material and performance requirements specified for the materials and methods used. Pack designs for level A will also be tested as follows:

(1) Packs will meet the applicable requirements of table III of MIL-P-116. Packs so tested must withstand shipment, handling, and storage without need of repair to the pack before reshipment or storage.

(2) Preservation will be designed to meet the criteria in AR 700-15 for items which, because of their characteristics, cannot be preserved per MIL-P-116. Such items will be tested for compliance with requirements set by the engineering activity responsible for the design. Tests must be comparable to those prescribed above.

(3) Level A pack designs must be subjected to and successfully withstand Test method No. 5017, Superimposed Load Test (Uniformly Distributed, Without Dunnage), FED-STD-101.

b. Level B. Preservation and packing will be designed to protect items from physical and environmental damage during known favorable conditions of shipment, handling, and storage for a minimum of 18 months, as specified by AR 700-15. Packages designed per MIL-P-116 will withstand, without damage to the item or failure of the preservation, the MIL-P-116 tests that apply to the preservation used.

c. Level C. Preservation and packing will be designed to protect materiel under a known favorable warehouse environment for a maximum of 18 months as specified by AR 700-15.

CHAPTER 4

PRESERVATION AND PACKING

Section I. PRESERVATION

1. General policy for developing requirements.

a. Implementation.

(1) Preservation policies and criteria in this section are designed to--

(a) Achieve effective and economical protection consistent with item characteristics, distribution, and use.

(b) Help to standardize methods and materials.

(2) Follow the policies and criteria in this section unless--

(a) Item characteristics, distribution, or use are such that implementation would impair item serviceability.

(b) Protection would conflict with user needs.

(c) The technical requirements could not be contracted with industry.

b. Shipments to overseas requisitioners.

(1) Security assistance (SA) shipments. Apply level A or B preservation to all SA shipments per chapter 13.

(2) Shipment to combat zones. Use level A or B preservation for shipments from contractors and depots in support of combat operations per AR 700-15. Exceptions are when--

(a) A lower level of protection is specified by HQ AMC or the requisitioner, or when a mutual agreement is made between the shipper and the requisitioner (see para 2-8).

(b) There is not enough time at the source to upgrade preservation to the required level for not-mission-capable supply or anticipated not-mission-capable supply and code 999 shipments.

(c) A lower level is authorized for special project shipments.

c. Methods, processes, and materials. Cleaning processes, drying procedures, preservatives, and other materials will always be chemically and physically compatible with each other and with the item being preserved. They will conform to MIL-P-116.

d. Unit protection. Items highly susceptible to deterioration or damage will have unit protection adequate to assure unit packs are independent from the protection of intermediate packs, case liners, and exterior containers after removal and until used or returned to the supply system.

e. Specific and detailed requirements.

(1) Preservation requirements will prescribe cleaning, drying, preserving, and unit pack methods and materials. Reducing and standardizing methods and materials used (e.g., types, grades, classes) will be a basic goal when preparing preservation requirements.

(2) When specific preservation details are not available, use the requirements of MIL-STD-2073 to apply preservation requirements. TM 38-230-1 can be used as a guide in the selection process.

4-2. Preservatives. The preservatives prescribed by packaging activities will conform to MIL-P-116 and will be based on item characteristics. To reduce the deprocessing of items by users, activities that prescribe preservatives will adhere to the following guidelines:

a. Volatile corrosion inhibitor (VCI) and oil-type preservatives. Use VCI materials and oil-type contact preservatives, rather than heavy or hard film-type contact preservatives, when feasible.

b. Primers. Though not treated as preservative types in MIL-P-116, primers when referenced in packaging documents will be of the type specified by the procuring activity. Primer is preferred to contact preservative where removal is not required (e.g., fenders, doors, brake drums, and interiors of dust shields).

c. Operational lubricants. Lubricants (e.g., MIL-G-10924) used on critical surfaces of items during operation, will be effective as a preservative and will be used in preference to a contact preservative.

4-3. Methods of preservation (unit protection). The method or submethod of preservation prescribed by packaging activities for an item will be based on a(1) through a(6) below. The prescription of a single method or submethod for an item, details of the materials and design for the method, and the minimum variance from MIL-STD-2073 will be the general rule and practice.

a. Selection of method or submethod. The following factors will influence the choice of a method or submethod of preservation:

- (1) Protection required for the item.
- (2) Physical and chemical characteristics of the item to be protected.
- (3) Level of protection criteria in AR 700-15.
- (4) Operational advantages afforded by methods or submethods with design features that--
 - (a) Require the least or no depreservation of the item at the time of use.
 - (b) Result in the least cube and weight in relationship to the contained items consistent with the required protection.
 - (c) Adapt readily to mechanical application.
 - (d) Provide reuse of the unit pack container for recoverable, repairable, or returnable items.
 - (e) Protect the contained items, once removed from intermediate or exterior containers, until used.
- (5) Fair and reasonable cost commensurate with protection and design requirements.
- (6) Potential for wide application to like or different items, thus aiding uniformity in preserving and reducing material stocks and equipment needs at operating levels.

b. Preferred methods. Methods I, IA-8, IA-15, IC-1, IC-2, or III of MIL-P-116 will be considered first when prescribing unit protection for an item. These methods are not listed in order of preference.

c. Composition of unit packs. The prescription and application of unit pack requirements will conform to MIL-P-116 and the following:

- (1) Only items of the same stock number or items assembled in sets or kits and issued under one stock number or part number will be placed in the same unit pack.
- (2) Unit containers will conform to the size requirements of MIL-STD-147, when feasible. Container selection and closure will conform to MIL-STD-2073-1.

(a) Methods in MIL-P-116 that call for specific containers are excepted.

(b) Exterior containers listed in MIL-STD-2073 may also be used as unit containers when they serve as both the unit and exterior container.

(c) Fiberboard containers will not be manufactured when they are available through Government supply activities and can be delivered in time to meet established shipping dates; or when containers are available through a commercial supplier at a lesser or equal cost and the lead time is sufficient to meet established shipping dates.

(3) When method I or III uses a bag (for identifying, containing, or handling items), the closure may be of any type.

(4) Use weather-resistant containers for level A unit packs except when a waterproof or water-vaporproof barrier is required over the unit container (such as PPP-B-566 boxes) by a method or submethod of MIL-P-116.

(5) Construct method II unit packs with barrier material conforming to class 1, 2, or 3 of MIL-B-131 or type I of MIL-B-22191 when the method used requires a flexible water-vaporproof barrier. For lower costs, MIL-B-131 is preferred. (Humidity indicators used in method II unit packs will conform to MIL-I-26860 (plug type) or MS-20003 (card type).)

(6) Use fast-pack containers conforming to PPP-B-1672 for shipping by parcel post or commercial small parcel service--

(a) Under repair and return programs.

(b) When a container capable of withstanding multiple uses is required.

d. Intermediate containers.

(1) Intermediate containers of uniform quantities of like items will be prescribed for levels A, B, and C and used when--

(a) The exterior surface of the unit pack is a bag or wrap, regardless of size (unless the bag meets the requirements for exterior containers appropriate to the particular level of protection or it is supplemented by a fiberboard container).

(b) The unit pack is less than 64 cubic inches.

(2) Intermediate containers will not be used except when specifically required by the packaging prescription and the quantity being packaged is equal to or greater than that specified for intermediate containers. Intermediate containers, when used, will be limited to a maximum of 100 unit packs, a net load of 40 pounds, or a maximum size of 1.5 cubic feet.

e. Packaging principles and guidelines.

(1) As a general rule, the basic method of preservation is determined by the nature of the item. The method prescribed should protect the item consistent with conditions outlined for each level in AR 700-15.

(2) When there is no packaging data in the file or when the necessary LOP is not addressed, MIL-STD-2073-1 will be used in preparing same. When the reference for the desired LOP is NA, the packaging data for the next higher LOP shall be used.

Section II. PACKING

4-4. Exterior (shipping) containers. a. General.

(1) Implementation exceptions to the packing policies and criteria of this section will be subject to paragraph 4-1a.

(2) Individual exterior containers prescribed in packing requirements for items will meet the design and performance criteria for levels A, B, and C packing in AR 700-15 and this regulation.

(3) Lowest packing costs will be achieved through careful choosing of exterior containers for shipment and storage of materiel. Containers used because of their cost, weight, or cube advantages will not be misidentified as a level of packing they cannot meet. Availability and manufacture of fiberboard containers will be per paragraph 4-3c(2)(c).

(4) Experience, user requests, or environmental, geographic, operational, or security factors will take precedence over cost, weight, or cube when choosing containers for a particular item, shipment, or destination. However, consider cost, weight, and cube in determining containers that will best achieve the protection objective.

b. Choosing a container. The factors to consider when choosing a container type or design for a particular item are--

(1) Level of protection required for the unit pack. (An exception is when the unit container is also the exterior container.)

(2) Physical properties of the item and type of load to be contained.

(3) Level of packing design and performance criteria in AR 700-15 and this regulation.

(4) Capability of the container for handling, storage, and multiple use.

(5) Disposition of the item in an unserviceable state (e.g., recoverable, repairable, or returnable) as it affects the container's reusability.

(6) Known or expected distribution plans for the item (troop issue, local consumption, or selective distribution as dictated by the end use).

(7) Weight and cube of the container taking into consideration the use of modular size containers.

(8) Initial cost of the container.

(9) Simplicity and economy of assembly and closure.

(10) Availability and source of containers for normal or emergency needs.

(11) Disposability, recycling, and safety.

c. Individual exterior containers will meet the size requirements as shown in appendix C of MIL-STD-147 as much as possible.

(1) Exterior shipping containers are listed in MIL-STD-2073-1 with their weight limitations and the levels of protection for their use. Although exterior containers other than those listed may be used (e.g., UU-S-48, PPP- B-35, and others), they are not listed due to their limited Army use.

(2) Containers for packing will meet Federal and military specifications. When these are not available, the containers will meet carrier rules.

d. Contents and capacity of exterior containers.

(1) Individual exterior containers will contain only items of the same stock number. Excluded are containers used for BII, sets, assemblies, special projects, and multipacks.

(2) When the quantity of a single line item to be packed requires more than one individual exterior container, those used will be of like size and will be packed with uniform quantities, when possible.

(3) The size of the exterior container and the pack quantity will be prescribed in packing requirements when it is likely that acquisition and distribution of such quantities will occur. Materiel in storage will not be repacked solely to meet this requirement.

(4) Where possible, exterior containers of a size that will hold the greatest number of items in the least number of containers will be prescribed and used. Such containers must be within the weight and dimension limits of the applicable container specification.

e. Blocking, cushioning, and securing items. Items will be blocked, cushioned, and secured in exterior containers to meet the requirements of MIL-STD-1186.

f. Closure and strapping of exterior containers.

(1) Closure of containers shown in this section will be per the requirements of the applicable specifications, including its appendixes.

(2) Strapping, when required, will be either metallic as specified in ASTM D-3953 or nonmetallic as specified in ASTM D-3950 for all Army-sponsored shipments. Containers will be strapped per applicable container specifications, except that strapping will not be required for--

(a) CONUS shipments (not including overseas shipments through ocean or air terminals).

(b) Shipments through a consolidation and containerization point (CCP) or shipments from one consignor to one final consignee in military-owned demountable containers (MILVAN) or commercial- or Government-owned (or leased) shipping containers (SEAVAN).

(c) Containers comprising a palletized unit load.

(d) Containers packed for storage.

g. Use of skids or pallets.

(1) Containers, except fiberboard, will be provided with skids when the containers--

(a) Have a gross weight of more than 200 pounds regardless of dimensions.

(b) Have length and width dimensions of 48 inches by 24 inches (1,200mm by 600mm) or more and gross weight of more than 100 pounds.

(2) Skids will be a nominal size of 3 inches by 4 inches, laid lengthwise.

(3) Boxes previously packed without skids and which exceed the 200-pound weight limit need not have skids.

(4) Fiberboard containers of the above weights and dimensions will be pallet-mounted for shipment or storage.

4-5. Nondisposable (reusable) containers (other than all metal, engineered design).

a. General design characteristics and limitations.

(1) Size. Reusable containers are designed to have minimum cube and weight. Items to be placed in reusable containers should not be disassembled to a degree that special skills or tools and equipment will be required to reassemble or test the items.

(2) Blocking, cushioning, and securing items. Items will be blocked, cushioned, and secured to conform to MIL-STD-1186.

(3) Lifting devices.

(a) Reusable container designs will be provided with devices to permit lifting of containers if rigging cables are to be used.

(b) Low-cost lifting devices will be designed and attached to containers so that the container and contents will be lifted as a unit.

(c) The lifting devices will not interfere with stacking or increase the cube. When the device does not meet lift capabilities and is intended by design and method of attachment only for use in lifting the top assembly cover from the container, the container will be marked, "LIFT LOADED CONTAINER BY BASE ONLY." This marking will be adjacent to the lifting device.

(4) Ventilation. Except for pressurized and desiccated types, ventilation will be provided in all enclosed reusable containers constructed by the requirements of the applicable container specification.

(5) Closure. Closure of wood, metal, or plastic reusable containers will be by any effective means that will permit ease of reopening and reclosing (e.g., screws, bolts, or other devices).

(6) Painting or preservation. Unless otherwise specified, metal or plastic reusable containers will be painted in color 383 green per MIL-STD-171E. Reusable wood containers will not require painting. They should, as needed, be treated with any of the following wood preservatives:

(a) 2 percent copper naphthenate.

(b) 3 percent zinc naphthenate.

(c) 1.8 percent copper-8-quinolinolate.

(7) Identification. The marking, "REUSABLE CONTAINERS-DO NOT DESTROY," will be applied in a prominent size and location on each reusable container for identification, reuse, and control of the container.

b. Use of reusable containers. Reusable containers will be prescribed, to the maximum extent possible, for the shipment and storage of items which are subject to return for depot repair or overhaul.

(1) If an item appears to qualify for a reusable container but none is specified in the packing requirements, the appropriate AMC MSC packaging activity will be contacted for a container recommendation.

(2) If a reusable wood container is appropriate for an item, the container will be designed to conform to MIL-C-104, MIL-C-3774, MIL-C-11264, PPP-B-601, or PPP-B-621, as applicable, in the absence of specific container details.

c. Care and maintenance.

(1) Reusable wood containers will be maintained by repairing or replacing damaged nut plates, structural members, corner straps, interior blocking, ventilators, hold-down brackets, bolts, or other components.

Repair of sheathing by covering with plywood (group A, type 1, grade 3 or 4, or group B standard sheathing with exterior glue of NN-P-530) is approved if it is less costly than replacing unserviceable boards.

(2) Care and maintenance of metal containers will conform to--

(a) TB 9-289 and TM 38-230-2.

(b) Applicable specifications.

(c) Other technical publications concerning specific items.

4-6. Special reusable metal containers. a. General. For the purpose of this section, special reusable metal containers are those containers designed to contain a specific item for storage and shipment. These containers are normally fitted with special shock mitigating devices (shock mounts). This regulation applies to all containers such as those designed per MIL-STD-648. This regulation requires that consideration be given to the use of special reusable containers during the design phase of packaging development. General purpose reusable containers, such as military standard (MS) drums (MIL-D-6054), are not covered by this section.

b. Use of special reusable containers.

(1) A special reusable container will be prescribed for an item that is subject to return from unit or field level for repair or overhaul at depot, when its weight, dimensions, or fragility rating exceeds the limitations for utilization of a general purpose reusable container.

(2) The cost of a special reusable container is offset through multiple reuse as compared to the cost of a single shipment disposable container.

(3) The item may be recovered, repaired, or returned.

(4) The need for periodic inspection or "exercising" the contained items justifies a special reusable container.

c. Control and accountability. Special reusable metal containers will be managed as nonexpendable items of supply per AR 710-1 and 2. Maximum use of these containers will be stressed at all levels of command. Upon removal of an item from its special reusable container, the container will be reentered into the supply system. It will--

(1) Contain an unserviceable return or be placed in stock under its own NSN.

(2) Be reported as excess to the MSC Inventory Control Points (ICP) supply activities for disposition instructions.

d. Container Design Retrieval System (CDRS). The CDRS is a repository of special reusable container designs kept by the U.S. Air Force Armament Development and Test Center, Eglin AFB, FL. This system shall be queried per MIL-STD-1510 for available container designs before purchasing new special reusable containers. This shall be done during the design phase of the item life cycle. Questions regarding the use of the CDRS may be directed to Headquarters, Armament Systems Division, ATTN: ADTC/SD3P, Eglin AFB, FL 32542-5000.

4-7. Use of liners and shrouds. a. General. Crate panel liners and shrouds made of waterproof barriers are designed mainly to protect packaged items by shedding free water. When used properly, liners and shrouds will give some protection from dust, dirt, and other foreign matter. Panel liners and shrouds are not case liners.

b. Case liners. Sealed case liners will not be used in packing Army materiel unless prescribed in packing requirements for a special item. Case liners will not be prescribed or used to avoid level A or B unit or intermediate packing requirements. An exception is when the characteristics, distribution, and use of the items make using case liners the only practical method of unit protection. When used, case liners will be made per MIL- L-10547.

c. Shrouds.

(1) Shrouds provide limited protection to items--

(a) In unsheathed containers.

(b) In pallet-type boxes.

(c) On skid bases.

(2) Provide added protection to containers in palletized unit loads by shedding water, dirt, dust, or other matter from tops and sides of loads.

(3) Waterproof barrier material of PPP-B-1055 or other waterproof material, such as polyethylene sheeting (L-P-378, minimum thickness 4 mils), will be used in making shrouds. Use of shrouds will conform to MIL-STD-1186.

CHAPTER 5

MARKING AND DOCUMENTING AMC MATERIEL FOR
SHIPMENT AND STORAGE

Section I. GENERAL

5-1. Marking unpacked items, unit and intermediate packs, exterior containers, and unitized loads.

a. Markings, applications, and materials for all levels will comply with MIL-STD-129. Marking of preparation for overseas movement (POM) shipments will conform to AR 220-10.

b. Markings for all levels that are not provided for in MIL-STD-129 (or in its references) or in this regulation, will not be used unless approved by Headquarters, Department of the Army (HQDA) or HQ AMC.

(1) Requests for changes or special markings should be submitted to the Director, AMC Packaging, Storage, and Containerization Center, ATTN: SDSTO-TP-P, Tobyhanna, PA 18466-5097.

(2) Markings approved will be referred for later inclusion in MIL-STD-129 or this regulation.

c. Requests for approval of markings not in MIL-STD-129 or this regulation will include the following:

(1) Sample of the desired marking.

(2) Instructions for use and applications.

(3) Proof of need and conclusive evidence that existing markings are not suitable or adequate.

d. In addition to the requirements herein, aircraft will be marked per applicable preparation for shipment technical manual.

e. Materiel will be marked with the highest level of preservation/pack that it meets, regardless of the LOP requirements or MRO/IRRD. Contractors will be directed the levels to be marked.

5-2. Address markings. a. CONUS and outside continental United States (OCONUS) address markings will comply with the documents below, as applicable:

(1) MIL-STD-129.

(2) DOD 4500.32-R.

(3) Shipping orders.

b. DD Form 1387 (Military Shipment Label).

(1) DD Form 1387 shall be used for address markings on all shipment units of DOD cargo originated by DOD shipping activities. The form will be completed using automated or manual capabilities.

(2) Transportation priorities (TP) 1, 2, and 3 shall be identified by a machine-printed, stenciled, stamped, hand lettered, or stick-on type numeral placed in the TP block of the address label. Hand lettering on DD Form 1387 is not authorized except for blocks 6, 10, 12, 13, and 17.

(3) Address labels will conform to DOD 4500.32-R and will be applied per MIL-STD-129.

5-3. Documentation. Documentation of shipments will comply with AR 725-50.

5-4. Marking and documenting materiel consolidated for air shipment.

a. Cargo packed level A, B, or C, subjected to the procedures for air shipments, will be marked for the final consignee per MIL-STD-129. DD Form 1387 will be used for all TPs. Space identified as "POE" in DD Form 1387 will show "Transportation Officer" plus the name and shipping address of the CCP.

b. Cargo unitized on a pallet will move through the transportation system on a single transportation control number as specified in DOD 4500.32-R.

5-5. Bar code markings. All bar code markings will conform to MIL-STD-1189 and will be applied per MIL-STD-129. These include bar code markings on unit, intermediate, and exterior containers of both general supplies and ammunition and on DD Forms 1348-1A and 1387.

Section II. USE AND APPROVAL OF DISTINCTIVE MARKINGS

5-6. Distinctive markings. Apply distinctive markings, including labels, only when specified to expedite segregation and distribution of supplies. Use these markings to identify special projects, project or product manager equipment, and special equipment. Apply markings by means of labels, stenciling, painting, or any combination of these. When a label is affixed to a tag, the tag will conform to UU-T-81.

5-7. Types. The only distinctive marking labels authorized are listed below and are available through normal publication supply channels. Use of unauthorized labels is prohibited. Requests for authorization of distinctive labels, other than those listed, will be per paragraph 5-1b(1) and (2).

a. DA Label 143 (Project Code Disc), 3- by 3-inch (fig 5-1) and DA Label 143-2 (Project Code Disc), 9- by 9-inch.

PROJECT CODE DISC

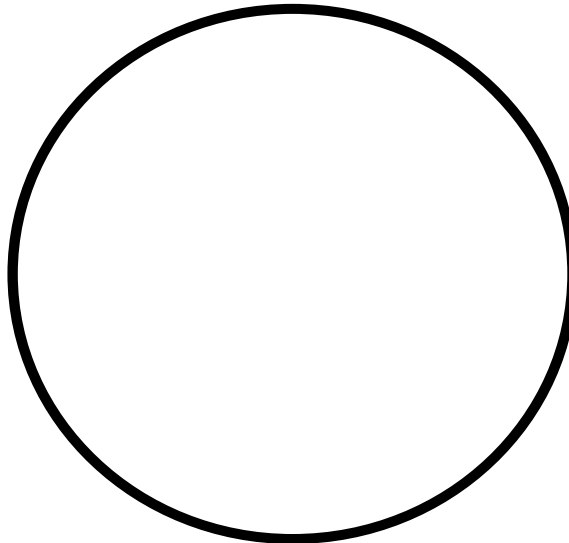


Figure 5-1. DA Label 143, Project Code Disc (3- by 3-inch)



CALIBRATION MATERIEL

DA LABEL 154, 1 Apr 72

★ GPO : 1972 O - 642-602

Figure 5-2. DA Label 154, Calibration Materiel (3- by 3-inch)

b. DA Label 154 (Calibration Materiel), 3- by 3-inch (fig 5-2) and DA Label 154-2 (Calibration Materiel), 9- by 9-inch.

5-8. Sizes. Marking will be either 3 by 3 inches or 9 by 9 inches. Use the larger size when marking surface permits.

5-9. Colors. Colors will conform to those listed in FED-STD-595.

5-10. Securing and protecting labels. Affix and overcoat labels with water- resistant label adhesive as specified in MIL- STD-129.

5-11. Application. Apply distinctive markings as follows:

a. Apply markings on two sides of rectangular shipping containers (includes consolidation containers).

b. Unit loads on pallets will have markings applied on two sides of the pallet load. When contents are of different commodities, do not mark the pallet loads but mark the units comprising the loads with the proper marking.

c. For cylindrical containers, apply two markings equally spaced on the circumference of the container.

d. For loose or unpacked items, apply markings on one side of a tag securely attached to the item per MIL-STD-129.

e. Mark MILVANS/SEAVANS only when specified; however, mark materiel to be loaded into the vans as specified in this chapter.

f. Apply markings to vehicles or other major unpacked items on the marking board or directly on the vehicle surface per MIL-STD-129. Apply markings to basic issue item (BII) containers only when shipped separately as exterior containers.

CHAPTER 6

PACKAGING FOR UNITIZATION AND CONTAINERIZATION APPLICATIONS

6-1. Unitization. All shippers of military supplies will adhere to the principles and procedures of unitization. Unitize materiel at shipment origin or at the earliest point thereafter.

a. Plan shipment unitization at the source to avoid consolidating or unitizing at terminals or other intermediate points.

b. Ship materiel in unitized loads as a part of acquisition actions whenever the quantity involved can be unitized. Unitize ammunition and explosives according to approved drawings that show the technique designed for the specified items.

c. Utilize shipment planning per DOD 4500.32 R and AR 725-50 to ensure greatest consolidation of materiel for movement.

d. Technical requirements for unit loads on pallets will be compatible with levels of protection prescribed for the shipment. Levels of protection for materiel on pallets in unit loads or unitized in consolidation boxes may be level B or C packaging when these levels will not compromise item protection when removed from the MILVAN/SEAVAN.

e. When shipping materiel in 55-gallon drums, there will be three drums per pallet. Drums will be on standard 40- by 48-inch four-way entry pallets and will be secured to the pallet by shrink or stretch film per MIL-STD-147.

(1) When shrink or stretch film is not available or the commodity is not compatible with shrink film processes (e.g., petroleum, oils, and lubricants (POL) products or explosives), secure drums with the appropriate metal strapping per ASTM D3953, applied girthwise.

(2) Use nonmetallic strapping per ASTM D-3950 as an alternate, when available, subject to the criteria of MIL-STD-147. If shipping fewer than three drums they do not need to be placed on a pallet.

f. Unitizing will be compatible with the characteristics of the commodities and the need for protection during handling, storage, and movement. The goal is to achieve minimum weight and cube. Materiel designed to be handled, stored, and shipped as a complete unit need not be further unitized when loaded directly on a skidded platform, load base, or pallet.

g. Loose cargo at terminals and freight consolidation or other assembly points will be consolidated and unitized for reshipment whenever compatibility of materiel and overall economy will result.

h. Mark unitized loads so that the items within the load can be identified without disassembly of the load.

6-2. Application. a. Pallet criteria. Use palletized unit loads subject to the following considerations:

- (1) The amount of materiel to be loaded on a pallet will --
 - (a) Exceed a total of 250 pounds (excluding the pallet).
 - (b) Exceed a volume of 20 cubic feet.
 - (c) Compactly occupy at least 80 percent of the pallet's load-bearing surface.
 - (2) The maximum weight limit for palletized unit loads is 3,000 pounds.
 - (3) Use of lightweight expendable pallets will conform to chapter 7.
 - (4) No overhang is permitted beyond the perimeter of a pallet deck when using expendable-type pallets to unitize fiberboard containers.
 - (5) Consolidate materiel when the load is sent to a single break-bulk point (BBP) or central receiving point (CRP) for distribution to supply support activities. Included are--
 - (a) Materiel with different project codes.
 - (b) Consolidation of project and nonproject materiel.
- b. Palletized unit loads. Prescribe palletization requirements in specifications, standards, and SPIs for levels of protection.
- (1) When basic protection methods are required for final handling, storage, or issue of the item, do not palletize in place of--
 - (a) Unit protection.
 - (b) Intermediate packs.
 - (c) Exterior containers.

(2) Palletize unit loads per MIL-STD-147 as follows:

(a) Shrink film. Shrink film bonding, to include multipacks, is appropriate for all commodities except ammunition, nuclear explosives, POL, and other flammable materials. Polyethylene (PE) shrink wrap for use in pallet-load bonding shall conform to type IV, class 3, grade A, finish 1, of L-P-378. Use thermoplastic films of 6-mil PE for loads up to 2,000 pounds. Use a PE film of 8-mil thickness from 2,000 to 3,000 pounds.

(b) Insert address markings face out under the shrink film bag before shrinking or attach them to the outside of the bag after shrinking with PPP-T-60 (type III, class 2) or PPP-T-70 tape applied over the entire address label. Use MIL-HDBK-770 for guidance on shrink film packaging.

(c) Stretch film. Use stretch wrap bonding, to include multipacks, for all commodities and types of palletized loads shipped in CONUS or when shipped containerized. Stretch wrap shall be clear, extruded PE, 0.9 mil minimum thickness or ethylene vinyl acetate (EVA), 0.8 mil minimum thickness. Multiwraps of PE shall add up to a minimum of 2.7 mils thickness, prior to wrapping, on loads up to 1,000 pounds, 4.5 mils thickness on loads up to 2,000 pounds, and 5.6 mils thickness on loads up to 3,000 pounds. A sheet of weather-resistant fiberboard or plastic film, the same size as the perimeter of the load, shall be placed on top of the load prior to wrapping to provide additional protection. Pressure sensitive labels containing identification and contract data markings and the address shall be placed on the outermost layer of wrap to enhance handling and shipping of the palletized load. A marking board positioned on the pallet before the last layer of wrap is applied, is authorized based on local operations and capabilities. Guidance on the use of stretch film packaging can be found in MIL-HDBK-770.

(d) Strapping. Strap per MIL-STD-147. Secondary straps on pallets without strapping slots in the stringers will be laid flat on the pallet and the load assembled and strapped before the load is bonded to the pallet. Apply primary and horizontal straps per MIL-STD-147.

(3) When pallets are used to contain loose items for protection and handling during shipment and storage under level A or B conditions, engineered unit load requirements will be prescribed for the item as follows:

(a) Give a detailed description of the unit load.

(b) Reference applicable requirements (e.g., specifications, standards, or data sheets).

(c) Use standard 40- by 48-inch (1,000mm by 1,200mm), four-way entry, wing-type, softwood pallets of type IV, size 2, NN-P-71, to build palletized unit loads (except as specified for MILVAN, SEAVAN, or air shipment).

(d) Use nonstandard pallet sizes for general supplies only if it would be impractical to use that in (c) above.

Note. Level A exterior protection of types 1 and 2 loads of nonperishable subsistence, personal clothing, and equipment packed in V2s fiberboard boxes of PPP-B-636 is done by palletization. The pallets are put in an engineered unit load per MIL-L-35078 for overseas shipment to a combat area outside of a containerization medium or when early removal from such medium and subsequent prolonged open storage are likely at destination. Specific details for preservation and packing will conform to MIL-L-35078.

(4) Palletized unit load requirements will, at least, be stated by reference to load types of MIL-STD-147 when engineered unit loads are not required.

(a) Prescribe requirements for items and containers that require stacking and handling aids because of quantity, design, weight, or protection needs.

(b) Weight and overall dimensional limits of palletized unit loads will conform to MIL-STD-147 except where prohibited by item or container characteristics. This is also true in separate directives for a specific use, commodity, geographical area, or mode of shipment.

c. Consolidation containers.

(1) Use consolidation containers to multipack mixed NSNs into one outside shipping container to ease handling during shipment.

(a) When packing multiple quantities of the same item in consolidation containers, position and secure them in a manner that will permit ready identification upon opening. As an alternate, consolidate (by bagging, bundling, tying, wrapping or packing in cartons). Identify the item and quantity before placing in the container.

(b) Center heavy items on the bottom of the container. Place light, critical items and transportation priorities on the top. Fill all voids with cushioning material.

(c) Include documentation per MIL-STD-129.

(2) Do not use consolidation containers for individual outside containers for a single line item. This does not bar their use in specifications, standards, or SPIs for a broad group of items where consolidation is feasible and likely to occur in shipments from contractors or depots.

(3) Consolidation containers will protect the contents during shipment to the final destination. The type of consolidation containers used will be based on the specified levels of protection. Standard consolidation containers (MIL-B-43666 and MIL-STD-147) made expressly for modular loading in containerization media will be used.

(4) Dimensions for consolidation containers for overseas shipment will be compatible with containerization media to permit greatest use of the available space. Length of individual consolidation containers should not exceed 86 inches.

(5) Consolidation containers on 40- by 48-inch (1,000mm by 1,200mm) four-way entry pallets will not exceed the maximum length and width permitted by MIL-STD-147 for conventional shipment. When shipped overseas within containerization media, consolidation containers will not exceed the dimensions of the pallet.

d. Unitizing pneumatic tires.

(1) Unitize pneumatic tires per MIL-T-4. When unitized at depots, use the shrink film or stretch film bonding method instead of metallic strapping. Do not use pallets when unitizing tires.

(2) Unitize tires with different NSNs for shipment in the same bundle, if--

(a) There is not enough of one NSN available to form a bundle.

(b) The outside dimension (OD) of any of the tires is between 14 inches and 48 inches.

(c) The tires are individually identified within the bundle.

(d) The tires are all for the same final consignee and all have the same priority designator (PD).

(3) Shrink film for level A will be type V (ultrainhibited (weatherable)), L-P-378, 6-mil thickness.

(4) Tube and tubeless tires having an OD of 48 inches or over will be shipped loose.

6-3. Containerization media. a. The use of containerization media for shipments of Army materiel will be as stated in directives governing this operation. The level of protection will be reduced from that afforded items shipped as individual exterior containers. However, the reduced level of protection will not compromise the protection required for the item in transit or after removal from the container (AR 700-15).

Note. Containerized shipments of ammunition and military explosives will be made per specifically approved drawings, permits, and procedures for the items involved and as directed by the applicable MSC.

b. Provide materiel shipped in containerization media with a level of protection consistent with the mode of shipment and logistical needs. Intermediate unitization, by means of unit loads on pallets and in consolidation containers, will be done for shipping in vans and trailers whenever the type and quantity of commodities and exterior container will permit. It is subject to the following provisions:

(1) Do not mix shipments to multiple activity addresses (supply support activity) unless for delivery to a single BBP or drop point.

(2) Load to at least 75 percent of the available cube, when possible. If the container weight capacity is reached before the 75 percent cube, mix materiel of different densities to get the best weight to cube ratio.

(3) Containerize all nonhazardous cargo when shipped through CONUS ports. If the materiel is not containerized, the port will overpack it to the required level of protection for surface shipment. Costs incurred in overpacking will be billed to the shipper service through normal billing channels.

(4) SA shipments are exempt from these provisions and will be given levels of protection per chapter 13.

(5) MILVAN utilization policy is indicated in AR 55-1, chapter 3.

Chapter 7

PREPARING MATERIEL FOR AIR SHIPMENT BY CONUS DEPOTS

7-1. General. a. These procedures apply to all Army materiel (except SA shipments or hazardous cargo) to be shipped by air and originating at CONUS depots.

b. Consolidate shipments of air-eligible materiel whenever practical within the limits of DOD 4500.32-R and this chapter.

c. Depots will ship to the designated CCP, where applicable.

7-2. Preparing shipment. a. Prepare materiel for shipment per this section.

b. Materiel destined for one consignee will be consolidated on 40- by 48-inch (1,000mm by 1,200mm) pallets or in consolidation containers when possible before shipping to the CCP. Depots may make direct-to-user shipments on 463L pallets if the shipment is to one consignee and can be made within the timeframes in AR 725-50.

c. Assorted stock numbers of small parts will be consolidated as multipacks.

d. Standard 40- by 48-inch (1,000mm by 1,200mm) palletized unit loads, consolidation containers, random size exterior containers, and loose items will be palletized on 463L pallets.

(1) If there is not enough cargo available to fill (gross or cube) a 463L pallet (5,000 to 10,000 lbs or 116 to 485 cu ft), the shipment will move as a unit load on standard 40- by 48-inch (1,000mm by 1,200mm) pallets or as loose cargo to the CCP .

(2) Consolidation containers (MIL-B-43666) and random size exterior containers will be shipped to the CCP only when the quantity is insufficient to palletize on a 463L pallet or on a 40- by 48-inch (1,000mm by 1,200mm) pallet or both.

Note. The maximum weight is 5,000 pounds for the half-size 463L pallet and 10,000 pounds for the full-size 463L pallet. Since the maximum weight for the standard 40- by 48-inch (1,000mm by 1,200mm) NN-P-71 pallet is 3,000 pounds, ensure the 463L pallet is not overloaded.

7-3. Unit protection. To provide adequate protection without adding unnecessary weight, it is essential that shipping activities adhere to the guidelines below when preparing materiel for air shipment.

a. The cost for military air shipments is normally based on tonnage. Therefore overpacking and using heavy packing materials, such as wood pallets, wood boxes, and metal shipping containers, when not required, add to the cost.

b. Materiel for air shipments should be repacked when tare weight and cube can be reduced; the required level of protection and security of the materiel must remain intact. Ensure that performance of special engineered container design is not affected.

7-4. Shock mitigation. a. Cushioning. There are many cushioning materials used in packing Army materiel. As a guide, use MIL-HDBK-304.

b. Blocking and bracing.

(1) Securing loads in containers. Items that do not completely fill the shipping container must be secured. Always use a lightweight material to support items for air shipments that require blocking and bracing.

(2) Shipping containers. An exterior container should be chosen based on the weight of the contents.

(3) Unitization.

(a) Pallets should be used based on the policy stated in chapter 10 of this regulation.

(b) Pallets for air shipments, when possible, should be lightweight (5 to 15 lbs) instead of NN-P-71 softwood (40 lbs) or hardwood (85 lbs). DA Pam 746-1 lists some lightweight pallets that have been approved for Army use. The pallets shown in the pamphlet are not all-inclusive. Shipping activities may use any suitable lightweight pallet. Such pallets should be used, however, per guidance found in DA Pam 746-1.

(4) Skids. Skids, like pallets, permit the use of materials handling equipment (MHE) for heavy or bulky items. However, when not used properly for air shipments, they add weight to a shipment increasing transportation costs. When using skids--

(a) The container and contents must weigh 200 pounds or more.

(b) The container must be 48 inches by 24 inches or more and weigh more than 100 pounds.

(c) Skids must be a nominal size of 3 inches by 4 inches.

7-5. Marking. Marking of air shipments will be as prescribed in MIL-STD-129 and this regulation, as applicable.

CHAPTER 8

SMALL PARCEL SHIPMENTS

8-1. Preservation and packing. a. General. A small parcel generally is defined as a pack that meets the size and weight limits and other requirements set by the carrier, (i.e., U.S. Postal Service (USPS) or commercial parcel service). Use parcel post for shipping Army materiel consistent with AR 340-3. Follow the USPS manual--

(1) To determine which shipments go by parcel post.

(2) For the limits placed on these shipments by USPS.

b. Level of preservation. Apply level B or C to all parcel post shipments. Use MIL-STD-1190 to determine level C packaging requirements.

8-2. Consolidation of parcel post shipments to the same consignee.

a. Consolidate parcel post shipments at the source, when possible. Activities with automated systems will consolidate by means of machine-generated shipment planning worksheets.

b. Activities that do not operate under mechanized procedures will consolidate shipments manually to one consignee.

8-3. Exterior containers. a. Small parcel shrink film containers. Shrink film may be used to pack and unitize small parcel shipments. Use the system whenever the item size permits.

(1) Items to be packed may be placed on trays (Commercial Item Description A-A-1253) or locally fabricated fiberboard sheets.

(2) In some cases, due to item size or configuration, a tray or sheet may not be required. MIL-HDBK-770 should be used as a guide in preparing small parcel shrink film packs.

b. Other containers. Items not packed per a above will be packed as follows:

(1) CONUS shipments. Containers will conform to part 121.32, USPS manual. Closure of fiberboard containers, except for registered parcel post, will be done in a way to ensure acceptance and safe delivery by the postal service or commercial small parcel carrier.

(2) OCONUS shipments.

(a) Containers for overseas parcel post shipments will be class weather-resistant of PPP-B-636. Reinforced or cushioned paper shipping sacks (PPP-S-30) and cotton mailing bags (PPP-B-20) may be used when they meet the needs of the shipment.

(b) Close the fiberboard containers, except for registered parcel post, with two strips of 3-inch-wide reinforced tape (PPP-T-45). Tape the fiberboard boxes with a single strip on the bottom center seam, extended over the ends at least 2 inches. Staples may be used for top and bottom closures, or a combination of stapling one closure and taping the other is allowed.

8-4. Registered and numbered insured parcel post. a. When required, make registered and numbered insured parcel post shipments according to AR 340-3.

b. Completely seal fiberboard containers used for registered shipments with type III, class 2 (nonstrippable) PPP-T-45 tape. The USPS does not accept pressure-sensitive tapes for sealing registered packages.

8-5. Required mail classification markings. Mark all official mailings, except letter-size, first-class mail below the postal indicia with the designated postal service (mail classification). Do this by rubber stamping or by hand lettering when rubber stamps are unavailable. Any official mailing without the proper mail classification markings will be returned to sender. Detailed requirements for these markings are in AR 340-3.

8-6. Use of commercial small parcel carriers. a. In addition to parcel post, Army activities may ship parcels by commercial small parcel carrier (e.g., United Parcel Service, Federal Express, etc.) when the service is available and economical.

b. Generally, any small parcel acceptable to USPS will conform to the requirements of commercial small parcel carriers although weight limits may vary.

8-7. Use of fast-pack containers. As often as possible, use PPP-B-1672 containers (fast packs) for depot shipment of repairable components to using activities.

a. Items susceptible to damage in shipment (i.e., delicate or fragile electronics items) should be shipped in fast packs. Any item of a size compatible with the containers may be shipped in a fast pack.

b. Although the fast packs are identified as reusable containers, they are not accountable items. Each activity should reuse the container for return of repairables and not return empty containers to shippers.

8-8. Small parcel shrink film system. a. The system is designed to pack and unitize packages and will be used for level B and C packaging. The unit automatically feeds, wraps, and discharges packages weighing from 1 pound to 70 pounds.

(1) This system does not negate the need for required preserving or cushioning.

(2) Packages made with the system are acceptable by USPS and commercial small parcel carriers.

(3) Appearance of packages (e.g., excess film formed at sides or ends, openings in the film (from inadequate bonding)) is not reason for rejecting a package. Guidance for using the system is in MIL-HDBK-770.

b. Place address labels, documentation, mail classification markings, and any other required markings beneath the film on top of the items before they are moved through the automatic wrapper. Place the address label so that it is easily read, (i.e., in the center and parallel with the length of the pack). There are three exceptions as shown below.

(1) Under the SA\foreign military sales (FMS) program, place DD Form 1348-1A in a PPP-E-540 envelope and attach it to the outside of the pack per MIL-STD-129; or place it on top of the items before they go through the sleeve wrapper. Take care to ensure that the document is clearly visible and positioned for easy removal.

(2) For materiel requiring USPS Form 3811 (Return Receipt, Registered, Insured, and Certified Mail), attach the form to the outside of the pack using PPP-T-60 or PPP-T-70 tape.

(3) For Direct Support System (DSS) shipments, place the document identifier code "D6S" (materiel receipt acknowledgment) card and the document identifier code "BBC" (consolidated shipment status) card in a PPP-E-540 envelope and attach them to the outside of the pack; or place them beneath the film in a way to prevent damage to the cards and permit easy removal.

Note. Do not use shrink film on photographic film and other items sensitive to heat transfer.

CHAPTER 9

FOAM-IN-PLACE (FIP)

9-1. General. There are various techniques for applying FIP materials. FIP will fill voids within a container and around an item. An irregularly shaped item will have maximum support from the flowing action of the rising foam expanding against item surfaces and the inside walls of the container.

9-2. FIP application. a. Several types of FIP are available. FIP may be more economical than other blocking and bracing materials.

(1) Because costs of FIP (polymeric isocyanate materials) vary among manufacturers, the point at which it becomes less costly to substitute foam for other materials must be determined locally.

(2) Such a decision may be based on the type of equipment in use and cost of the chemical components.

(3) FIP can be used to replace the following types of cushioning and blocking and bracing materials. This substitution does not apply to requirements as specified in SPIs.

- (a) Lumber.
- (b) Die-cut fiberboard, formed pads, or cells.
- (c) Premolded plastic foam shapes.
- (d) Hold-down or tie-down devices or fasteners.
- (e) Special design rigid shipping containers.

b. FIP materials of either 2.0 or 0.5 per cubic foot density may be used. These density ranges, grouped as rigid and semirigid foams, respectively, will be limited in use.

(1) Use rigid foams (limited to 90 pct closed cell) for blocking and bracing.

(2) Use semirigid foams for cushioning (0.5 lb density) limited to 20 percent closed cell. Their use requires considering certain engineering design parameters. Initial guidelines include the following:

- (a) Item weight restricted to 100 pounds.

(b) Foam thickness minimum of 1.5 inches.

(3) Restricting use for shipments in which repeated handlings and storage are not expected (e.g., repair and return program; troop installations).

c. Ventilation systems, although desirable, are not required. However, a continuous check (air sampling) of the foaming area is needed. The concentration of isocyanate vapor will not exceed 0.01 parts per million (0.02 parts per million is permitted by Executive Order 11612).

(1) Foaming operations will stop if the minimum vapor is in the air. After the offending vapor is removed continue foaming.

(2) Frequent repetition of this condition may justify installing a ventilating system. Vapor detection kits are available from many commercial sources.

d. Exterior containers should be used with foam; an exception is when molds can be used for return shipment of like repairable units. In these cases, apply PPP-T-97 or PPP-S-760 completely around the molds.

e. Items sensitive to a static electric charge will use foam-in-bag or split-pack procedures with conductive plastic material placed between the item and the confining foam. (An example of such material is MIL-B-81705.)

(1) For items sensitive to heat (maximum 150°F.), use a mockup of the item and a premade foam mold.

(2) Use the full foaming procedure described above only with an approved method of MIL-P-116.

f. Items managed by TACOM will be preserved and packed per the applicable SPIs for the specific item. Any additional items managed by TACOM to be considered for FIP packaging must be submitted to, and approved by U.S. Army Tank-Automotive Command, ATTN: AMSTA-GTP, Warren, MI 48397-5000. Items managed by the U.S. Army Missile Command (MICOM) will be referred to that command, ATTN: AM-SMI-SSD-P, when considered for FIP packaging.

g. Identify FIP packs prepared in weather-resistant fiberboard exterior containers as having level B exterior protection. Only when FIP is used with an exterior container that meets the requirements for a level A will the packs be identified.

CHAPTER 10

PREPARATION OF GUIDED MISSILE AND LARGE ROCKET SYSTEMS, AMMUNITION, EXPLOSIVES, AND OTHER HAZARDOUS MATERIELS FOR SHIPMENT AND STORAGE

Section I. GENERAL

10-1. Introduction. This chapter sets policies and procedures for packaging and marking ammunition, explosives, and other hazardous materials.

10-2. Preparing and documenting. Requirements to package and mark ammunition, explosives, and other hazardous materials will be developed per military and regulatory requirements and approved container specifications of the Department of Transportation (DOT) and international regulatory requirements, and will be documented on engineering drawings, packaging data sheets, or in specifications.

10-3. Preservation. Preserving ammunition items or other hazardous materials will comply with approved drawings, packaging data sheets, or specifications.

10-4. Packing. a. Packing of ammunition items and other hazardous materials will comply with approved drawings and specifications or packaging data sheets, and, when applicable, certificates of equivalency (COE).

b. Performance oriented packaging (POP). In addition to the above, all hazardous materials that fall within the realm of POP, must be tested and certified to meet international regulations. When a dangerous good is regulated to move within CONUS, it must be shipped per DOT Hazardous Materials Regulations, CFR 49. International shipments must move per the International Maritime Dangerous Goods (IMDG) Code and/or International Civil Aviation Organization (ICAO).

10-5. Marking. Markings for ammunition items and other hazardous materials will comply with MIL-STD-129, the item or general marking drawing, DOD and DOT regulations, and international regulatory requirements.

a. Color coding, when applicable, will conform to the requirements of MIL-STD-709 and other requirements that apply.

b. Packaging for conventional and chemical ammunition, will not be color coded. Packaging for group A chemical ammunition

will be color coded per drawings reflecting the requirements of MIL-STD-709 .

10-6. Packaging, shipping, and storing applications. Policy criteria in this regulation will be accomplished per this chapter, which complies with AR 700-15 and other pertinent regulations.

10-7. Safety measures. a. Policy.

(1) Adhere to separate instructions such as AR 385-11, AR 55-228, AR 55-355, AR 385-64, TM 38-250, AR 700-141, CFR 49, CFR 29, other applicable DOD and DOT regulations, and international regulatory requirements when shipping and storing ammunition, explosives, toxicants, or other dangerous goods.

(2) Ensure that appropriate steps have been taken to identify if a material safety data sheet (MSDS) is available by checking the Hazardous Materials Information System (HMIS) microfiche or Compact Disc-Read Only Memory (CD-ROM). If a record is not found in the HMIS, a hardcopy of the MSDS must accompany the shipment. If one is found, no MSDS is required with the shipment.

(3) Ensure that weapons, vehicles (tanks, self-propelled artillery, armored personnel carriers, trucks, and other equipment) are free of ammunition and explosive material. This also applies to salvaged ammunition components (projectiles, cartridge cases, and similar materials).

b. Responsibilities.

(1) The shipper will--

(a) Affix a DD Form 2271 (Decontamination Tag) to each vehicle, weapon (except small arms), or other item of major equipment. The tag will be affixed in a conspicuous location that will preserve legibility and protect against deterioration and damage.

(b) Tag the containers used for shipping of small arms to show that contents have been inspected. An individual small arms weapon will not be tagged.

(c) Furnish shipments of items that contain radioactive material with interior and exterior container warning labels prescribed by MIL-STD-129 and its references.

(d) Provide packaging for items packed for military air shipments that contain magnetized material with shielding, isolation, orientation, and labeling per MIL-S-4473, TM 38-250, and TM 38-236.

(2) Both the shipper and the port of embarkation will certify that materiel has been inspected and all ammunition, explosives, and hazardous materials have been removed. Provisions for certification are shown on DD Form 2271.

(3) Materiel in original packing that has not been exposed to possible sabotage by the enemy are exceptions to the tagging requirements of this paragraph. This includes explosives, toxics, and ammunition specifically covered by DA directives.

Section II. GUIDED MISSILE AND LARGE ROCKET SYSTEMS

10-8. General. This section covers preserving, packing, and marking of ammunition, explosives, and other hazardous materials for guided missile ammunition and large rockets, including their components. It also concerns materiel developed by MICOM. In addition to policies set by this section, uniform policies, procedures, and criteria are also based on requirement documents, such as required operational capability, letter requirement, and other user needs.

10-9. Developmental requirements. Packaging requirements for preserving, packing, and marking will be developed using MIL-D-46845 and container specifications of DOT regulations.

10-10. Packaging documentation. Packaging requirements will be documented per paragraph 2-2.

10-11. Levels of protection. The level of protection for which requirements are set will conform to military levels of protection of AR 700-15.

a. In choosing levels of protection for guided missile ammunition, large rockets, and components, provide the highest level of protection to ensure against hazards during shipment, handling, and storage.

b. The main considerations in choosing the right level of protection are environmental conditions and length of storage.

10-12. Preserving, packing, and marking. a. Preserving. Preservation requirements for guided missile ammunition, large rockets, and components will conform to MIL-P-116.

b. Packing. Packing of guided missile ammunition, large rockets, and components will comply with the applicable packaging data.

c. Marking. Marking requirements for guided missile ammunition, large rockets, and components will comply with MIL-STD-129. They will also comply with other regulatory marking requirements for specific hazards or modes of transportation (TM 38-250, DOD and DOT regulations, IMDG Code, and other international regulatory requirements). Color coding requirements will conform to MIL-STD-709 and other criteria prescribed by the item manager.

Section III. CONVENTIONAL, CHEMICAL, AND NUCLEAR AMMUNITION AND EXPLOSIVES

10-13. General. This section covers packaging, packing, and marking ammunition, explosives, and other hazardous materials that are developed by the U.S. Army Armament, Munitions, and Chemical Command (AMCCOM). Included are conventional, chemical, and nuclear ammunition and their components. Excluded are guided missile ammunition, large rockets, and their components.

10-14. Development requirements. Requirements for preserving, packing, and marking will be developed per--

a. Need and requirement documents.

b. Existing directives including Federal and military specifications, container specifications, or DOT regulations and international regulatory requirements.

10-15. Packaging documentation. Packaging requirements will be documented per paragraph 2-2.

10-16. Levels of protection. The level of protection will conform to the applicable military level per AR 700-15. Include the user's documented requirements. Provide the highest level when selecting levels of protection for conventional, chemical, and nuclear ammunition and components. This ensures adequate protection against basic hazards during shipment, handling, and storage.

10-17. Packaging and marking. a. Preservation requirements for ammunition and components will conform to MIL-P-116. Packing will comply with applicable packaging data.

b. Markings will conform to MIL-STD-129 and the applicable item drawing, general marking drawing, and other regulatory marking requirements for specific hazards or modes of transportation (TM 38-250, DOD and DOT regulations, international regulatory requirements, Coast Guard (CG) rules and regulation (CG 108), and IMDG Code). Color coding will comply with paragraph 10-5. Interior and exterior containers holding radioactive items will be marked per MIL-STD-129.

10-18. Safety measures. Safety measures cited in paragraph 10-7 will apply.

CHAPTER 11

PREPARING VEHICLES AND AIRCRAFT FOR SHIPMENT

11-1. Preparing vehicles for shipment. The following requirements apply to shipments of vehicles and related equipment from CONUS supply sources (vendors and depots):

a. Maximum protection. Maximum protection, called level A, will be specified to protect vehicles during shipment, handling, and storage for more than 90 days from the date of processing. This level of protection is suitable for shipments to any destination as well as for open deckloading aboard ship. Periodic care of the equipment is required under the Care of Supplies in Storage (COSIS) Program.

(1) Principal combat vehicles will be fitted with proper closure kits, when it is known vehicles will be stored outside for an extended period (in excess of 90 days).

(2) Engines and other components, other than those that must remain operable, will be processed per the applicable vehicle processing instruction.

b. Intermediate protection. Level B will be specified to protect vehicles during shipment, handling, immediate use, or storage not to exceed 90 days from date of processing. Periodic care of the equipment while in storage is required under the COSIS Program. This level of protection is suitable for either domestic or overseas shipment (except for open deckloading aboard ship).

(1) Closure kits will not be used for combat vehicles. Seal openings with water-resistant tape conforming to MIL-T-22085.

(2) Provide drive-away capability, when required.

c. Manufacturers domestic/export practice. Manufacturers standard commercial domestic or export procedures may be substituted for either level A or B requirements provided they are submitted to, evaluated, and approved by the packaging organization of the MSC as meeting or exceeding established preparation for shipment and storage requirements. Marking will reflect appropriate level.

d. Mounted equipment and components. Give mounted equipment and components of vehicles and equipment, other than those that must remain operable, a level of protection equal to that required for the vehicle. Adequate protection and security will be given mounted equipment and components susceptible to loss or damage from pilferage, vandalism, vibration, or other conditions incidental to shipment.

e. BII. Give BII protection specified by MIL-B-12841.

f. Battery electrolyte. Stow the packed electrolyte in the same location as the BII. Secure it separately to permit removal.

g. Shipment in support of combat operations. Give wheeled and tracked vehicles shipped in support of combat operations level A protection. Apply specific levels of protection as required by the requisitioner or as directed by the item manager, whose decision will be based on agreement between the shipper and the requisitioner or the major commander.

h. Air shipment of vehicles. Air shipment of vehicles will be governed by carrier rules for that mode of shipment. MIL-STD-1791 gives general requirements for air transport. Observe general precautionary measures that apply to shipping these items by air.

i. Shipments to arctic regions. Shipping activities will ensure that any type of vehicular equipment shipped to arctic regions is winterized to withstand the mean ambient temperatures of the locale to which shipment is made. Winterization measures include, at least, use of arctic lubricants and fluids, proper antifreeze protection, and other specific winterization measures required by the responsible MSC.

11-2. Preparing vehicles for overseas shipment. The requirements specified below apply to shipments of vehicles and related equipment from CONUS supply sources (vendors and depots) to overseas requisitioners.

a. Levels of protection. Give wheeled and tracked vehicles levels of protection per AR 700-15.

(1) Vehicles to be stored will be given the level of protection required for planned storage conditions (e.g., short-term open and covered storage, level B; long-term open and covered storage, level A).

(2) Always give contingency or reserve stock vehicles level A protection. Vehicles shipped by favorable transportation for

immediate use will be given level B protection. Vehicles that will be deckloaded or are for overseas storage will be given level A protection.

b. SA shipments. Give level A preservation to all vehicles shipped to SA customers except when a lower level is--

(1) Requested by the receiving country (foreign military sales (FMS)) and supply support arrangements.

(2) Recommended by the responsible Military Assistance Advisory Group (MAAG), SA Office, or implementing service.

c. Responsibilities for preparing vehicles for overseas shipment. CONUS shipping activities will--

(1) Process vehicles per applicable procedures as referenced in the packaging segment of the AMDF (AR 708-1), and with exterior dimensions reduced per TB 55-46-1.

(2) Replace or repair, upon request of the commander of a terminal, any vehicle damaged in transit that requires repair beyond the abilities of the terminal.

(3) Advise the Military Traffic Management Command (MTMC) of the level of protection that has been given the vehicles. This will be a coded entry in the outsize specification card of the Export Traffic Release Request.

d. MTMC CONUS terminal responsibilities for preparing vehicles for overseas shipment. MTMC CONUS terminals will--

(1) Preserve vehicles received for overseas shipment to the required level of protection (AR 700-15) and per approved instructions of the packaging segment of the AMDF (AR 708-1). An exception is when shipping instructions specify that the vehicles are to remain drivable for ease of loading and offloading.

(2) Determine if damage to the vehicles has occurred in transit. Make repairs within the capability of the terminal.

(3) Remove vehicles to designated repair facilities as instructed by the applicable MSC when vehicles are damaged beyond the repair capability of local terminal shops.

(4) Give the following supplemental protection to deckloaded vehicles, as applicable:

- (a) Secure doors to prevent accidental opening.
- (b) Seal openings in closed cabs, vans, and other closed-type bodies with tape per MIL-T-22085.
- (c) Cover radiator grilles, windows, and fixed flat windshields with exterior grade plywood paneling of a minimum 3/8-inch thickness, 3-ply, secured with metal strapping.
- (d) Secure fold-down windshields in the folded-down position and provide a cover constructed per MIL-V-62038.
- e. Shipments in support of overseas movement of troops. Unit commanders will ensure that unit vehicles are prepared for overseas movement per AR 220-10. The provisions herein do not change the responsibilities of the MTMC ocean terminals as specified in AR 220-10.

11-3. Preparing vehicles for shipment to CONUS requisitioners.

a. Unless special requirements are provided by the requisitioner, all shipments to CONUS using units, as indicated by the in-the-clear address, will be considered for immediate use and processed for shipment, level B, drivable (self-propelled) and towable (towed) vehicles. All fluids and lubricants will be at operating level and enough fuel will be in the fuel tanks of self-propelled vehicles to permit off-loading and movement 10 miles at the receiving point. Unit commanders will be responsible for sustaining vehicles prepositioned but not issued.

b. Preparing vehicles for shipment to CONUS storage facilities.

(1) New vehicles. MSCs will ensure that vehicles are processed prior to shipment to the depots based on known or projected storage times and location. Unique requirements will be coordinated with depots for temporary storage of vehicles that will encompass reduced levels of exercising, inspection, and deterioration prevention procedures.

(2) Vehicle turn-ins. Unit commanders will ensure all preventive maintenance requirements have been performed and vehicles are processed per applicable requirements of TM 746-10. Upon receipt from units, depots will process the vehicles per applicable vehicle preservation requirements based on known or anticipated storage times and location.

(3) Depot retrofit, overhaul vehicles. Depots will process retrofitted or overhauled vehicles per requirements established in the

Depot Maintenance Work Directive (DMWR). MSC packaging organizations will provide appropriate preservation requirements to the DMWR.

11-4. Preparing aircraft for shipment and storage. a. Preparation for shipment. Prepare aircraft for shipment per applicable preparation for shipment technical manual.

b. Preservation. Preservation requirements for aircraft are determined by the mode of shipment and the period of time the aircraft will remain inactive

(1) Preservation instructions contained in the applicable preparation for shipment manual normally provide protection for up to 45 days.

(2) When the aircraft will remain inactive for more than 45 days, or when it will be shipped by truck or on a weather deck of a vessel, it will be preserved for intermediate storage per applicable aircraft unit and intermediate maintenance manual.

c. Storage. The types of storage applicable to aircraft are defined in TM 55-1500-204-25/1. Specific requirements are provided in the applicable aircraft unit and intermediate maintenance manual.

(1) Flyable storage maintains the aircraft in operable condition. There is no time limit for flyable storage, however, flyable storage requires periodic inspection and ground run of the aircraft.

(2) Short-term storage procedures preserve aircraft for up to 45 days. These procedures require extensive preservation, but eliminate the requirement for periodic run ups.

(3) Intermediate storage procedures preserve aircraft for a period of 46 to 180 days. These procedures require very extensive preservation of the aircraft. Intermediate storage is the longest term of storage applicable to aircraft. At the end of a 180-day period, the aircraft must be depreserved, have all required maintenance operations performed, be operated, and returned to flyable status. If further storage is required, it may then be represerved for storage.

CHAPTER 12
DIRECT SUPPORT SYSTEM (DSS) SHIPMENTS

12-1. Consolidation. To meet the purpose of DSS and provide for rapid disposition of supplies at destination, packing requirements will include separate multipacking of materiel for each customer of the supply activity.

a. The CCPs will consolidate DSS cargo in vans or on 463L pallets, when possible. DSS cargo shipped from CCPs will be palletized or unitized to the maximum extent possible to facilitate container unloading by MHE in overseas areas. All CCP shipments will be made per applicable theater distribution plans.

b. Originating shipping depots will route DSS cargo through the CCPs unless direct van/463L loads to one consignee can be made within DSS timeframes. Direct shipments to the using activity will be documented per FM 38-725.

c. A 463L pallet load destined to one consignee will not contain cargo for multiple consignees. The 463L polyethylene bag is not required when pallet loads making up the 463L pallet load are unitized by means of shrink film. Materiel unitized on pallets and bonded with other than shrink film will have the 463L polyethylene bag placed over the load.

12-2. Levels of protection. Level C per MIL-STD-1190 requirements will be used to package DSS shipments. A higher level of preservation and packing may be required for specific items. Stock selected for shipment will be upgraded to level C requirements prior to shipment.

12-3. Packing. a. Containers for the level of packing required, will be as specified in MIL-STD-2073-1, except when a specific container has been designated by the responsible MSC.

b. Consolidation containers will be as follows:

(1) Fiberboard consolidation containers. Fiberboard consolidation containers are listed in MIL-STD-2073-1. Consolidation boxes to be used in vans will conform to MIL-B-43666, type III, style 3.

(2) Multipacks. The use of multipacks shall conform to chapter 6. Data on preparing shrink film multipacks are shown in MIL-HDBK-770.

12-4. Marking. Markings will conform to MIL-STD-129 and this regulation. Caution will be used to ensure use of authorized markings only.

CHAPTER 13

SECURITY ASSISTANCE (SA) PROGRAM, WAR RESERVE, AND PREPOSITIONING OF MATERIEL CONFIGURED TO UNIT SETS (POMCUS) SHIPMENTS

Section I. SA PROGRAM SHIPMENTS

13-1. General. a. Preparing AMC materiel for shipments under SA programs will conform with provisions of AR 700-15 and this regulation. Further criteria for furnishing supplies and services to foreign governments are in AR 12-1 and AR 12-8.

b. For shipment to SA organizations for military sales, supply support arrangements, and Grant Aid, item managers will ensure that the levels of protection in this regulation are applied. Levels of protection will conform to the terms of the sales agreement, DD Form 1513 (U S. DOD Offer and Acceptance), with foreign governments' FMS and supply support arrangements and the recommendations of the responsible MAAG as follows:

(1) FMS and supply support arrangements. Packaging will be level A/B except for air and parcel post shipments which will be level B/B. Exception data are not required on requisitions or MROs/IRRD to effect these shipments. Using level B preservation for shipments by other modes will be as stated in the DD Form 1513. This guidance will be in the requisition as exception data and also in the MRO/IRRD.

(2) Grant Aid. Packaging will be level A/B except for air and parcel post shipments which will be level B/B. Exception data are not required to effect these shipments. Shipments made in MILVANS/SEAVANS will be preserved level B only when level B is indicated as eXception data on the requisition and on the MRO.

13-2. Marking. a. General. The requirements of MIL-STD-129, and this chapter will be followed in marking SA shipments. Activities concerned with disaster relief shipments will ensure that emblems of the prescribed design, quantity, and size are applied when specified by MIL-STD-129. Activities concerned with Grant Aid, FMS, and supply support arrangements will ensure that emblems such as those used for disaster relief shipments are not applied. They will ensure that the FMS case number contained in card columns 48-50 of the MRO/IRRD is applied to each container.

b. Registration markings. United States registration markings will not be applied to vehicles and other such materiel or attached to BII. Existing registration numbers will be removed. In their place, the United States registration number (about three-eighths of an inch in height) will be stamped on lightweight metal tags. The tags will be securely

attached with soft wire to the side of the front and rear of each vehicle or other item assigned such as registration number. For FMS shipments, tags will be removed at the free-on-board point. For Grant Aid, the tags will remain attached until vehicles are delivered in-country.

13-3. Documentation and address marking. Shipping activities will ensure that shipping documents (DD Form 1348-1) are distributed per AR 725-50. This will preclude losses of materiel in transit and nonreceipt of documentation by country representatives and freight forwarders.

13-4. Standards of appearance and serviceability for exterior containers. Exterior containers used for SA shipments will be new or in like-new condition in appearance, serviceability, and performance. However, do not repack SA shipments in new exterior containers when existing containers can be restored at low cost to a like-new condition. When a choice exists between serviceable containers in stock, the containers selected will be those of the higher degree of appearance and serviceability.

Section II. WAR RESERVE AND POMCUS SHIPMENTS

13-5. War Reserve shipments. Packaging for War Reserve shipments will be level A/A, except when the total shipment weight is less than 25 pounds and the total shipment cube is less than 1 cubic foot; then the Packaging will be level A/B.

13-6. Shipment and storage of POMCUS materiel. POMCUS materiel and equipment shall be processed for shipment and storage per procedures contained in TM 38-450.

CHAPTER 14

SPECIAL SHIPMENTS

14-1. Preserving and packing for special shipments.

a. General. Preservation and packing for shipment of items requiring special or unique considerations will conform to AR 700-15 and this regulation.

b. Retrograde and returned materiel. Adequately protect retrograde and returned materiel to maintain the degree of serviceability of the materiel being returned.

(1) Provide materiel the level of packaging to prevent deterioration of the item to a lower condition code. This applies while the item is in storage or in transit to the designated rebuild or repair facility.

(2) In all cases, the materiel will be marked with the condition code (CC), NSN, nomenclature, and quantity. Materiel condition tags or labels will be applied as required in MIL-STD-129. When needed, the method of cleaning and disinfesting, used to prepare the materiel for shipment, will also be marked on the materiel.

(3) OCONUS returns should be packed for shipment based on the environmental conditions expected to occur during the item's transit time to the CONUS rebuild facility. Shipments of used clothing and textile materiel (C&TM) that are contaminated or infested will be cleaned and disinfested per DOD 4145.19-R-1 before shipment from overseas commands. Clearly mark the CC and the method of cleaning and disinfesting used on each container.

c. POM shipments. POM shipments of unit equipment will be prepared per AR 220-10.

d. Electrostatic discharge (ESD) sensitive items. ESD sensitive items shall be prepared per MIL-HDBK-773.

14-2. Security of sensitive items. a. Shipments of sensitive items will comply with AR 190-11 and AR 55-355. Sensitive items include those items shown in AR 740-26.

b. The requirement for overpacking, for security reasons, sensitive item shipments to achieve a specified minimum weight per shipment unit

AMC-R 746-10

(AR 190-11 and AR 55-355) is not excessive packaging per this regulation. Such overpacking will be done on an individual case basis in the absence of required cargo containers.

c. Special shipment requirements for small arms are contained in TM 743-200-1.

CHAPTER 15

CARLOADING, TRUCKLOADING, AND AIRCRAFT LOADING

15-1. General. Outloading procedures for rail, truck, and air shipment of ammunition and related components, military explosives, and nonexplosive equipment, including missile peculiar equipment, will be developed. Development will ensure safety, serviceability, and economy during transportation and storage. The set procedures will be compatible with the guidance and procedures in AR 55-355, AR 70-47, and AR 740-1. (Traffic management publications cited in this chapter may be obtained from the sources listed in AR 55-355, chap 107.) An index of detailed outloading and storage drawings for class V commodities is in DA Pam 75-5.

a. Carloading. As required, carloading drawings will be consistent with the requirements of the DOT and international regulatory requirements, and the policies of the Association of American Railroads (AAR). The responsible packaging activity will decide when drawings are required. In case of conflict between published instructions and MSC drawings, the drawings will take precedence. Carloading drawings will be developed for--

- (1) Flatcar, boxcar, and gondola.
- (2) Trailers-on-flatcars.
- (3) Container-on-flatcar shipments of specific commodities.

b. Truckloading. As required, drawings covering flatbed, van-type, lowboy, and deep-well truck shipment of specific commodities will be developed as determined by the responsible MSC. Procedures will be consistent with those of AR 740-1 and AR 55-355. In case of conflict between published instructions and MSC drawings, the drawings will take precedence.

c. Aircraft loading. Loading procedures will be consistent with AR 55-355, AR 59-8, DOD 4500.32-R, and guidance from MTMC. Drawings covering military air transport guidance, provided in TM-55-series manuals, will be observed for external and internal loading of specific aircraft. This section prescribes policies for consolidating materiel for air shipment.

15-2. Loading rules. The publications listed below contain instructions and references pertinent to rail, truck, and air shipment.

- a. AR 55-355 (lists publications and sources of supply).
- b. DOD 4145.19-R-1 and TM 743-200-1.
- c. DOT Regulations and Uniform Freight Classification Rules.
- d. National Motor Freight Classification Rules.
- e. DOD 4500.32-R.
- f. TM 38-250.
- g. Code of Federal Regulations, Title 49.
- h. AR 70-47.

15-3. Test loading and test shipments. a. Purpose. Test loading and test shipments (AR 55-355) are held to determine the adequacy of exterior containers, loading methods, blocking, bracing, and securing of rail or truck shipments. They also provide input for developing new or revised loading rules.

(1) Carloading. Test shipments involve line-haul movements and are governed by Rule 49 of the Uniform Freight Classification Rules, AAR Loading Rules, policies of MTMC, and applicable tariffs. Test loading is conducted in the local area, (i.e., vendor's plants, depots, or arsenals, with rail cars being subjected to impacts which may occur during actual shipment). MTMC Transportation Engineering Agency (TEA), ATTN: MTT-TRC, will be apprised of and approve all proposed tests.

(2) Truckloading. Neither the national Classification Board of the Motor Carrier Industry nor area organizations have published pamphlets showing uniform loading methods. Follow the basic principles outlined in AR 55-355, chapter 221, when tests involving load test shipments are needed.

b. Proposed changes, exceptions, or additions to loading rules for commodities other than ammunition. Any AMC depot or depot activity proposing a change, exception, or addition to the loading rules contained in either the AAR publications or other technical publications, will submit proposals through AMCPSCC, ATTN: SDSTO-TP, Tobyhanna, PA 18466-5097, to the Commander, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTT-TRC, 12388 Warwick Boulevard, P.O. Box 6276, Newport News, VA 23606-0276.

(1) Proposals submitted will include 15 copies of the proposed loading figure and 15 copies of loading specifications for review.

(a) Drawings must be 17 inches by 22 inches, giving a plan, end, and side views.

(b) Drawings must have all items of securement identified with capital letters similar to drawings shown in the Carloading Manual.

(c) All new or revised loading figures and loading methods are subject to being test loaded (impact tested) or over-the-road tested for the AAR prior to final acceptance.

(2) Test loading and test shipments. Military activities desiring to conduct test loadings or test shipments will furnish all pertinent information of the proposed tests.

(a) In addition, military activities will provide the proposed site of the test, tentative dates, specifications, and drawings or photographs. They will be forwarded through appropriate channels to the Commander, MTMCTEA, for prior approval.

(b) The date the materiel is forwarded by the activity will be at least 30 days in advance of the tentative dates of the proposed tests.

CHAPTER 16

TRAINING AND OUTREACH PROGRAM SERVICE Section I. TRAINING

16-1. General. a. Personnel who develop packaging data or who are involved in other packaging operations will be trained in the packaging of Army materiel.

b. The resident courses at the School of Military Packaging Technology (SMPT), Aberdeen Proving Ground, MD, are the prime source of military packaging training. These courses cover all aspects of military packaging and are announced in DA Pam 351-4 and DOD Catalog 5010.16-C.

16-2. Local training. a. Local packaging training programs are needed to develop and maintain packaging capability within installations. The programs train people who do not meet the prerequisites for attending SMPT; they also provide specialized training in the technical aspects of packaging.

b. Local training programs should include the following subjects:

(1) Packaging and unitizing operations.

(2) Goals and policies for preparing materiel for shipment and storage.

(3) Economical, operational, and logistical effects of changes and new ways to buy, distribute, transport, store, and use packaging materiel.

(4) Improvements, changes, and trends in military packaging to keep personnel abreast of developments.

c. Instructors should be accredited off-campus instructors (AOCI) certified by SMPT.

d. SMPT should be asked to help in selecting training aids for use at service schools and installations.

e. Correspondence courses offered by SMPT are available at no cost to DOD students and cover the same subjects as many of the resident courses. Correspondence and resident courses are listed in SMPT Booklet 202. It can be obtained from the Dean, School of Military Packaging Technology, ATTN: AMXMC-SMPT-A, Aberdeen Proving Ground, MD 21005-5001.

Section II. OUTREACH PROGRAM VISITS

16-3. Outreach Program service. AMCPSCC provides Outreach Program service to all AMC installations and activities per AMC-R 700-1. This service consists of periodic liaison visits and special visits as requested. Support is also provided to activities outside of AMC as requested or directed.

16-4. Purpose of visits. These visits--

a. Provide technical guidance and assistance on packaging methods and procedures.

b. Ensure compliance with the latest packaging policies, regulations, and directives.

c. Analyze new methods and concepts encountered during visits for possible dissemination to other depots and activities.

d. Review problem areas, as requested, and make recommendations.

e. Determine the need to correct inadequate, costly, or inconsistent requirements in packaging prescriptions and practices.

f. Review areas of special interest identified by HQ AMC, HQ DESCOM, and AMCPSCC. Inform HQ AMC, through reports of visits, that effective packaging programs exist and are currently working.

The proponent of this regulation is the U.S. Army Materiel Command Packaging, Storage, and Containerization Center. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Director, U.S. Army Materiel Command Packaging, Storage, and Containerization Center, ATTN: SDSTO-T, Tobyhanna, PA 18466-5097.

FOR THE COMMANDER:

OFFICIAL:

WILLIAM B. McGRATH
Major General, USA
Chief of Staff

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Chief, Operations and Support
Division

DISTRIBUTION:
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SDSTO-T (20)

APPENDIX A

REFERENCES

Section I. REQUIRED PUBLICATIONS

AMC-R 70-46	Technical Data Packages for AMC Materiel
AR 12-1	Security Assistance - Policy, Objectives, and Responsibilities
AR 12-8	Foreign Military Sales Operations/Procedures
AR 25-30	The Army Integrated Publishing and Printing Program
AR 55-1	CONEX/MILVAN Equipment Control, Utilization and Reporting
AR 55-38	Reporting of Transportation Discrepancies in Shipments
AR-55-228	Transportation by Water of Explosives and Hazardous Cargo
AR 55-355	Defense Traffic Management Regulation
AR 59-8	Department of Defense (DOD) Common User Airlift
AR 70-47	Engineering for Transportability
AR 190-11	Physical Security of Arms, Ammunition and Explosives
AR 220-10	Preparation for Overseas Movement of Units (POM)
AR 340-3	Official Mail Cost Control Program
AR 385-11	Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety)
AR 385-64	Ammunition and Explosive Safety Standards
AR 672-20	Incentive Awards
AR 700-15	Packaging of Materiel
AR 700-141	Hazardous Materials Information System (HMIS) (RCS DD-FM & PLA, Q & AR) (1486)
AR 702-7	Reporting of Product Quality Deficiencies Across Component Lines
AR 708-1	Cataloging and Supply Management Data
AR 710-1	Centralized Inventory Management of the Army Supply System
AR 710-2	Supply Policy Below the Wholesale Level
AR 725-50	Requisitioning, Receipt, and Issue System
AR 735-11-2	Reporting of Item and Packaging Discrepancies
AR 740-1	Storage and Supply Activity Operations
AR 740-26	Physical Inventory Control
ASTM D 3950	Standard Specification for Strapping, Plastic (and Seals)
ASTM D 3951-88	Packaging, Commercial
ASTM D 3953	Standard Specification for Strapping, Flat Steel (and Seals)

Code of Federal Regula- tions Title 29	Occupational Safety and Health Administration (OSHA)
Code of Federal Regula- tions Title 49	Transportation
Commercial Item Descrip- tion A-A-1253A	Board, Prepacking (Paperboard and Molded Pulp Trays)
DA Pam 75-5	Index of Storage and Outloading Drawings for Ammunition Commodities
DA PAM 351-4	Army Formal Schools Catalog
DOD 4145.	Storage and Materials Handling
19-R-1	
DOD 4500.	Military Standard Transportation and Movement
32R	Procedures (MILSTAMP)
FED-STD-101	Test Procedures for Packaging Materials
FED-STD-595	Color (Requirements for Individual Color Chips (3X5 Supplements)
FM 38-725	Direct Support System (Management and Procedures)
MIL-HDBK-304	Package Cushioning Design
MIL-HDBK-770	Shrink Film/Stretch Film in Military Packaging
MIL-HDBK-773	Electrostatic Discharge Protective Packaging
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-147	Palletized Unit Loads
MIL-STD-171E	Finishing of Metal and Wood Surfaces
MIL-STD-647	Packaging Standards, Preparation and use of
MIL-STD-648	Design Criteria for Specialized Shipping Containers
MIL-STD-709	Ammunition Color Coding
MIL-STD-961	Military Specification and Associated Documents, Preparation of
MIL-STD-962	Military Standards, Handbooks, and Bulletins
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking, and Waterproofing, with Appropriate Test Methods
MIL-STD-1189	Standard Department of Defense Bar Code Symbolology
MIL-STD-1190	Minimum Guidelines for Level C Preservation, Packing and Marking
MIL-STD-1191	Foam-In-Place Packaging, Procedures for
MIL-STD-1510	Container Design Retrieval System, Procedures for Use of

MIL-STD-1791	Designing for Internal Aerial Delivery in Fixed Wing Aircraft
MIL-STD-2073-1	DoD Materiel Procedures for Development and Application of Packaging Requirements
MIL-STD-2073-2	Packaging Requirements Codes
MS-20003	Indicator, Humidity, Card, Three Spot, Impregnated Areas (Cobaltous Chloride)
TB 9-289	Depot Reconditioning of Engine, Transmission and Similar Reusable Metal Containers
TB 55-46-1	Standard Characteristics (Dimensions, Weight, Cube) for Transportability of Military Vehicles and Other Outside/Overweight Equipment
TM 38-230-1	Packaging of Materiel: Preservation
TM 38-230-2	Packaging of Materiel: Packing
TM 38-236	Preparation of Freight for Air Shipment
TM 38-250	Packaging and Materials Handling: Preparation of Hazardous Materials for Military Air Shipment
TM 38-450	Storage and Maintenance of Prepositioned Materiel Configured to Unit Sets (POMCUS)
TM 55-1500-204-25/1	General Aircraft Maintenance Manual
TM 743-200-1	Storage and Materials Handling
TM 746-10	General Packaging Instructions for Field Units
MIL-T-4	Tire, Pneumatic, and Inner Tube, Pneumatic Tire, Tire with Flap, Packaging of
PPP-B-20	Bag, Cotton, Mailing
PPP-S-30	Sack, Shipping, Paper (Cushioned)
PPP-B-35	Bags, Textile, Shipping, Burlap, Cotton and Water proof Laminated
PPP-T-45	Tape, Gummed, Paper, Reinforced and Plain, for Sealing and Securing
UU-S-48	Sacks, Shipping, Paper
PPP-T-60	Tape: Packaging, Waterproof
PPP-T-70	Tape Packaging, Plastic Film
NN-P-71	Pallets, Material Handling, Wood, Stringer Construction, and 4 Way (Partial)
UU-T-81	Tags, Shipping and Stock
PPP-T-97	Tape, Packaging/Industrial, Filament Reinforced
MIL-C-104	Crates, Wood: Lumber and Plywood Sheathed, Nailed and Bolted
MIL-P-116	Preservation, Methods of
MIL-B-131	Barrier Materials, Water Vaporproof, Greaseproof, Flexible, Heat Sealable
L-P-378	Plastic Sheet and Strip
NN-P-530	Plywood, Flat Panel
PPP-E-540	Envelope, Water-Resistant for Packing List and Shipping Documents

PPP-B-566	Boxes, Folding, Paperboard
PPP-B-601	Boxes, Wood, Cleated-Plywood
PPP-B-621	Boxes, Wood, Nailed and Lock-corner
PPP-B-636	Boxes, Shipping, Fiberboard
PPP-S-760	Strapping, Nonmetallic (and connectors)
PPP-B-1055	Barrier Material, Waterproof, Flexible
PPP-B-1672	Boxes, Shipping, Reusable with Cushioning
MIL-C-3774	Crates, Wood, Open, 12,000 and 16,000 Pound Capacity
MIL-S-4473	Shielding of Magnetron Tubes and Magnets for Air Shipment
MIL-L-10547	Liners, Case, and Sheet, Overwrap, Water Vaporproof or Waterproof, Flexible
MIL-G-10924	Grease, Automotive and Artillery
MIL-C-11264	Containers, Wood, Shipping, Reusable for Tank Automotive Engines, Transmissions, Differentials, Transfers, Final Drives, Driving Axles & Similar Assemblies
MIL-B-12841	Basic Issue Items for Military Vehicles, Carriages and Equipment, Preparation for Shipment and Storage of
MIL-P-14232	Parts, Equipment and Tools for Army Materiel, Packaging of
MIL-B-17757	Boxes, Shipping, Fiberboard (Modular Sizes)
MIL-T-22085	Tape, Adhesive, Pressure-Sensitive, Preservation and Seal
MIL-B-22191	Barrier Material, Transparent, Flexible, Heat Sealable
MIL-I-26860	Indicator, Humidity, Plug, Color Change
MIL-L-35078	Loads, Unit, Preparation of Semiperishable Subsistence Items, General Specification for
MIL-B-43666	Boxes, Shipping Consolidation
MIL-D-46845	Design Requirements for Missile Weapon Systems, Packaging and Packing
MIL-V-62038	Vehicles, Wheeled, Preparation for Shipment and Storage of
MIL-B-81705	Barrier Materials, Flexible, Electrostatic Heat Sealable

Section II. RELATED PUBLICATIONS

DA Pam 746-1	Pallets and Storage Aids for Army Use
DOD Catalog 5010.16	Defense Management Education and Training Program (MI&L)

Section III. PRESCRIBED FORMS

DA Label 143	Project Code Disc (3- by 3-inch)
DA Label 143-2	Project Code Disc (9- by 9-inch)
DA Label 154	Calibration Materiel (3- by 3-inch)
DA Label 154-2	Calibration Materiel (9- by 9-inch)

Section IV. REFERENCED FORMS

DA Form 2258	Depreservation Guide for Vehicles and Equipment
DD Form 1348-1	DOD Single Line Item Release/Receipt Document
DD Form 1348-1A	DOD Single Line Item Release/Receipt Document
DD Form 1387	Military Shipping Label
DD Form 1426	Standardization Document Improvement Proposal
DD Form 1513	U.S. DOD Offer and Acceptance
DD Form 2169	Special Packaging Instructions
DD Form 2169C	Special Packaging Instruction
DD Form 2271	Decontamination Tag
SF 361	Discrepancy in Shipment Report
SF 364	Report of Discrepancy (ROD)
SF 368	Product Quality Deficiency Report
USPS Form 3811	Return Receipt Registered, Insured and Certified Mail

APPENDIX B

ABBREVIATIONS AND TERMS

Section I. ABBREVIATIONS

AAR	Association of American Railroads
AMC	U.S. Army Materiel Command
AMCCOM	U.S. Army Armament, Munitions , and Chemical Command
AMCPSCC	AMC Packaging, Storage, Containerization Center
AMDF	Army Master Data File
AOCI	accredited off-campus instruction
ARMS	Army Master Data File Retrieval Microform System
BBP	break-bulk point
BII	basic issue items
C&TM	clothing and textile materiel
CC	condition code
CCP	consolidation and containerization point
CCS	Commodity Command Standard System
CDRL	Contract Data Requirements Lists
CD-ROM	Compact Disk-Read Only Memory
CDRS	Container Design Retrieval System
CG	Coast Guard
COE	Certificate of Equivalency
CONUS	Continental United States
COSIS	care of supplies in storage
CRP	central receiving point
DESCOM	U.S. Army Depot System Command
DMWR	depot maintenance work requirement
DOD	Department of Defense
DOT	Department of Transportation
DSNMDR	Depot Stock Number Master Data Record
DSS	Direct Support System
DWCCS	Depot Weight and Cube Challenge System
ESD	electrostatic discharge
EVA	ethylene vinyl acetate
FIP	foam-in-place
FMS	Foreign Military Sales
HMIS	Hazardous Materials Information System
HQ	Headquarters
HQDA	Headquarters, Department of the Army
ICAO	International Civil Aviation Organization
ICP	inventory control point
IMDG	International Maritime Dangerous Goods Code
IRRD	Issue Receipt Release Document
LOP	level of protection

MAAG	Military Assistance Advisory Group
MATCAT	materiel category
MHE	materials handling equipment
MICOM	U.S. Army Missile Command
MILVAN/ SEVAN	Military-owned demountable container/commercial or Government-owned (or leased) shipping container
MRO	materiel release order
MS	military standard
MSC	major subordinate command
MSDS	military safety data sheet
MTMCTEA	Military Traffic Management Command Transportation Engineering Agency
NSN	national stock number
OCONUS	outside continental United States
OD	outside dimension
PD	priority designator
PDMF	Packaging Data Microfilm File
PE	polyethylene
POL	petroleum, oils, and lubricants
POM	preparation for oversea movement
POMCUS	Prepositioning of Materiel Configured to Unit Sets
POP	performance oriented packaging
QDR	Quality Deficiency Report
ROD	Report of Discrepancy
SA	security assistance
SB	supply bulletin
SMPT	School of Military Packaging Technology
SPI	special packaging instruction
TACOM	U.S. Army Tank-Automotive Command
TB	technical bulletin
TM	technical manual
TP	transportation priority
TROSCOM	U.S. Army Troop Support Command
USPS	United States Postal Service
VCI	volatile corrosion inhibitor

Section II. TERMS

Ammunition. Ammunition of all types, including chemical, radiological, and nuclear weapons; bombs; explosives; mines; fuses; detonators; pyrotechnics; missiles; rockets; propellants; and other associated items including related components and provisioned parts.

Classified cargo. Cargo that has a security classification of confidential or higher, or cargo for which concealment is a must.

Containerization. Using a type of transport equipment designed to move goods by one or more modes of transportation without intermediate handling of the contents (includes MILVANS, SEAVANS, and roll-on/roll-off trailers).

a. MILVAN (military van). Military-owned demountable container, conforming to United States and International Standards, and operated in a centrally controlled fleet for movement of military cargo.

b. SEAVAN. Commercial- or Government-owned (or leased) shipping container moved by ocean transportation without bogey wheels attached, (i.e., lifted on and off the ship).

Deckloaded vehicles. Vehicles stowed on vessels in locations where they will be directly exposed to the elements, including salt spray deck wash, rain, or snow while in transit.

Excessive packaging. The use of more preservation/packing materials than are necessary to protect an item adequately.

Explosives. Explosives include chemical compounds or mechanical mixtures which, when subjected to heat, impact, friction, detonation, or other initiation, undergo a rapid chemical change. This change is an evolution of large volumes of highly heated gases that exert pressures in the surrounding medium.

High value cargo. Cargo that has not been unitized for shipment.

Major deviation. A substantial deviation from packaging policy that could have an adverse impact on unit protection and require determination of adequacy by AMCPSCC/item manager.

Method. The specific methods of preservation and packing referenced in MIL-P-116.

Minor deviation. A departure from established packaging policy that based on local judgment has little bearing on the effectiveness of unit protection. For example, use of packaging materials/procedures that are clearly equal to or better than those prescribed.

Other dangerous articles. Includes, but is not limited to, flammable liquids and solids, oxidizing materials, corrosive liquids, compressed gases, and poisonous substances.

Packaging. The processes and procedures used to protect materiel from deterioration and damage. It includes cleaning, drying, preserving, packing, marking, and unitizing.

Packing. Assembling of items into a unit, intermediate, or exterior pack with necessary blocking, bracing, cushioning, weatherproofing, reinforcement, and marking.

Palletized unit load. Quantity of any item, packaged or unpackaged, that is arranged on a pallet in a specified manner and securely strapped or fastened so that the whole is handled as a unit.

Preparation of Army materiel. Includes those measures required to physically ready items for shipment, handling, or storage. The functions include cleaning and drying, preserving, packing, marking, consolidating, unitizing, and containerizing (loading, blocking, and bracing aboard carrier equipment).

Preservation. Applying unit protective measures, including cleaning, drying, preservative materials, barrier materials, cushioning, and containers when necessary.

Small arms. All arms, including automatic weapons, up to and including caliber .60 and shotguns.

Terminals. Includes all CONUS military ocean terminals, outports, subports, and all other outloading terminals processing vehicles for overseas shipments for the Army on an interservice support agreement.

Unitization. Assembly of packs of one or more line items of supply into a single load so that the load can be handled as a unit. Unitization (unitized loads/unit loads) encompasses consolidation in a container, placement on a pallet or load base, or securely binding together.

Unit load. Assembly of items (in or out of a container) designed to ease handling these items as a single unit.

Vehicles. All types of unboxed and uncrated equipment that are capable of being moved on their own wheels or tracks, including self propelled or towed (i.e., administrative, tactical, artillery, construction, and MHE).